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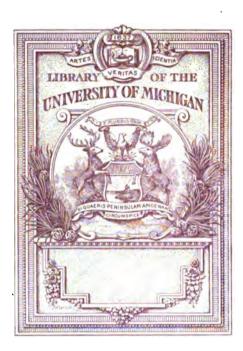
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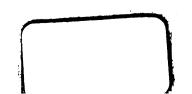
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THE GIFT OF
V. J. Willey



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THE PRACTICAL PHOTOGRAPHER.

American Library Series.

VOL. I.

AUGUST, 1904.

NO. 5.

The Pictorial Work of Frank M. Sutcliffe.

By THE EDITOR.



R. FRANK M. SUTCLIFFE is a native of that English county which stands first in point of size if nothing else. He is an amateur in the best sense of the word, loving nature and her beauties, with every changing season, though an unkind fate has made him

a professional photographer, earning his living in an out-of-the-way seaside town, "principally by copying the poor work of tenth-rate amateurs and

photographing restless babies."

Coming of an artistic family—for his father and grandfather were painter-artists—he has evidently inherited the pictorial tendency. His mother, who had some French blood in her veins, thinking that there were artists enough in the family, discountenanced any school art teaching for young Frank. Nevertheless, she could not very well hinder the boy watching his father draw and design, etch and paint in every conceivable medium, not even excluding the working of enamels. Before he was six years old this youth was critical enough to express disapproval of the then somewhat rough and coarse illustrations appearing in such papers as the Illustrated London News, though John Leech's drawings in Punch, and others by

Birket Foster are still remembered as having given genuine pleasure. Music of the best kind was a feature of this art-loving household.

Now it so chanced that on the bookshelves was that once famous book by Lake Price on Photography. It was this volume which determined the future career of the subject of these jottings.

Mr. Sutcliffe has the rare art of writing a letter in the same attractive and breezy way that he talks, and in one such letter to the present writer he says, "My father suggested my trying photography. I objected strongly and pointed out that no one of our acquaintance either made pictures or money by photography. My father said that was their fault and not that of photography, and, that they might make money too if they had better studios, kept them clean and went the right way to work. Then we went to live near Ripon, where I borrowed The British Journal of Photography from the beginning and wrote out in an indexed book everything which I thought would be useful."

The above quotation aptly shows us something of the far-seeing powers of father and son, and also tells us of the sturdy mental grip of those who set themselves to do thoroughly what they undertake.

With such inherited art feeling one is not surprised to find Mr. Sutcliffe writing, "Of painters, I believe that J. F. Millet has shown me more than any others. Frank Brangwyn I consider the greatest living painter. His design and colour are both grand. David Murray and Alfred East seem to know what to say and how to say it better than most men." Among the poets his favourites are Tennyson—especially the earlier and simpler writing—Shakespeare, Burns and Byron. Wordsworth also has a warm corner in his affection. But for those who have to engage in the battle of life he doubts the worldly wisdom of too much poetry, for it tends to make them too sensitive.

Here again is another extract which photographers of all kinds should lay well to heart, for it contains teaching which is sadly needed. "Photography is the lazy man's pencil, or perhaps I should

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say the busy man's pencil. It enables him to make representations of things in next to no time. The weak point of photography is that except in the hands of one who has been trained from infancy to see, it "draws" too much, and the eye is vexed at having to reject so much. I would say that anyone can in half an hour, with pencil or brush, get more of the spirit of a scene than one could in a month with a camera. The work of the artist is to put down what he sees for the benefit of those who have not been endowed with his gifts. Even as a record of facts a few hurried pencil lines are often better than a perfect photograph."

Turning now to technical matters, we may let our readers into one of Mr. Sutcliffe's secrets. nearly always uses a long-focus lens and large aperture, so getting the space feeling and quiet suppression of much that is not wanted. Thus on a whole-plate his favourite tool is a 14 inch R.R. lens working at f/8 or f/11.

His favourite printing medium is platinotype, though he is a past master in carbon and silver printing in various forms. He was one of the leaders in the movement towards close framing, i.e., omitting the conventional and tasteless mounts of a quarter of a century ago. Like most other really fine craftsmen he has squarely faced and recognised the limitations of photography as an art process, "in not being able to make anything more beautiful than it is. It is no use to call in retouching and sunning down, for it will not alter an ugly angular line into one of grace and beauty."

Following previous custom, we jot down a few notes on the selected examples of our artist, taking them approximately in the chronological sequence of their production.

"Man goeth forth to his Labour until the Evening." In this composition we are greatly indebted to the striking character of the sky. The man and horses are strongly relieved in silhouette against the "parting daylight." Our artist was brought in contact with the great art teacher, Ruskin, some years ago, a fact which calls to mind that teacher's Digitized by GOOGLE

insistence on the dignity of human work. It is from the land that man has wrested the vast wealth of the world. The agriculturalist is the real Atlas upon whose human shoulders rests the existence of mankind. The student should note the wise omission of any objects likely to detract from the theme of the picture. Simplicity and strength are closely allied in the making of pictures.

"Confidences."—Here again we have yet another lesson in the value of a simple composition. The background of weed-clad rocks is wisely put out of focus just enough to prevent it engaging too much attention. The balance of light and shade is admirable, and the chief contrasts kept towards the centre of the picture. The soft sunlight is well suggested by the shadows about the faces, arms, and aprons.

"In the Sunshine Time of Life."—A delightful scene of child-life, bathed in bright, warm, mellow sunshine, typical of the careless light laughter-loving joyousness of youth. The student should well lay to heart the technical qualities of this picture, which teach him that bright light effects are not rendered by under-exposure, with its sequent hardness in the high-lights and blackness in the shadows: but that it is transparency and warm reflected light in the shadow portion, with a subtle and delicate gradation in the high-lights that gives the true atmospheric suggestion of this effect. The background of distant landscape again is kept quiet, and gives a broad mass of light and shade leaving all our interest for the figures.

"Peace."—This title will naturally recall a quite different class of subject published in a recent number of this series. This only goes to show how many and various are the ways that human feelings and sentiments may present themselves to us. The artist says, "Would that all of us had this old lady's secret for looking so contented." The pose of the whole figure is quite charming, and the quiet mystery of the graduated natural background leaves nothing to be desired. This is an admirable example of distribution of light and shade,



Peace.





THE PICTORIAL WORK OF FRANK M. SUTCLIFFE.

together with picturesque arrangement of line. The strongest lights and shadows are properly arranged about the head.

"The End of the Furrow."—Here we have a valuable object lesson in grouping. Note how the plough seems to link together the horses and men. The gradual falling away of the distance, or "differentiation of planes" is instructively shown. The horse bearing the rider is perhaps a little unfortunate in its position relative to the spectator. The student may here learn the difference between balance and symmetry of arrangement.

"The Young Orthographer and his Grandfather."
—A happily caught group of fisher folk who for the most part were content to make their own spelling until such "new fangled" things as school boards came to disturb their contentment. The three men near the centre are a little too much in a row for best effect, though natural enough in pose with hands in pockets. The woman half unconsciously seems to be wishing that she too had a couple of pockets for her hands. The reproduction does not adequately convey the harmonious distribution of light and shade in broad masses without flatness which is so well presented in the original.

"In Puris Naturalibus."—It is not given to every one to have the courage to attempt the difficult task of rendering flesh tones in plein air,—and to still fewer comes success. The example before us is particularly valuable in showing the falsity of other renderings, which more often than not convey the impression that we are looking upon statues of bronze rather than flesh. The stones in the right lower corner are very valuable in giving space to the foreground, and serving as a tone note in relation to the darker portions of the cobble. The posing of each figure is excellent, though one could wish that the spaces between the three figures had not been quite so nearly equal.

"The Snow-clad Uplands" takes us by "a skip and a jump" to a scene vastly different from all the others. The author says—"Taken a few years ago when we had a real blizzard. It only shows how

tame the wildest scene comes out in the camera." And yet the bleak desolation of this windswept upland in that part of the world where the Londoner said, "all their hedges are stone walls," is very suggestively rendered to those who know these lonely fells.

Bold and bleak and bare, Sloping towards the sea;

The angry sky portends the coming storm, With shivering winds and drifting snow.

"Whitby Harbour."—A delightful group of fishing craft, behind and beyond which hangs a semi-translucent veil of luminous light. The nearer vessel towards the left lower corner is the keystone of the composition, as may readily be seen if we cover it over for a moment. This picture well illustrates balance without symmetry or formality, and breadth of light and shade without monotony or flatness.

"Day Dreams."—A happily chosen title for a happily caught pose and expression in apt harmony with the dream pictures of the sea monsters in the background. The decorative quality of this work cannot fail to teach the observant student the value of flowing lines and broad masses of light and shade. It is perhaps a little unfortunate that the dark object just above the head should fall so nearly in the centre of the top margin. The modelling of hands and face is particularly pleasing. The flowing lines of the hair and poise of the head are also especially graceful and pleasing.

We cannot fail to notice how wide are Mr. Sutcliffe's artistic sympathies, and with what innate and unconventional judgment he treats each subject. In viewing these several examples, we must not forget that they range over a considerable period and carry us back to the days when a good many of the recent artistic "discoveries" had already been made by himself, Gale, Robinson, Rejlander, Hill, Mrs. Cameron, and a few others whose photographic work laid the foundation stones of present day pictorial photography.

Preliminary Note by the Editor.

HE beginner may perhaps be disappointed for a moment on finding that this booklet is not a complete guide to developing, fixing, printing, toning, mounting, framing, etc., like other hand-camera manuals. We therefore hasten to explain that bromide and P.O.P. printing have been

already fully dealt with in Nos. 1 and 3, and developing in No. 6 of this series. Platinotype printing will be exhaustively treated in our next number. No. 7 deals with intensification, reduction and all the other processes of after-treatment of the negative. Mounting, titling and framing are embraced in No. 4. It will now appear to the reader that, having dealt with these topics in separate volumes, we are here enabled to give far more space and attention to hand-camera work pure and simple than would have been possible had we attempted to make this book a general guide or introduction to photography.

Introduction to the Use of the Hand Camera.

By REV. H. MUDIE DRAPER.

I Z

is quite a mistake to imagine that because it is easy to use a hand camera, therefore it is easy to take successful photographs. Hand-camera work, to be satisfactory, demands considerable skill and knowledge.

Choice of Camera.

Hand cameras may be classed as follows:—(1) Magazine cameras. (2) Roll film cameras. (3) Cameras fitted with dark slides.

Magazine cameras are so fitted and arranged that they will contain a number of plates, which by a mechanical contrivance are removed to another part of the camera when exposed, a fresh plate coming into position when one has thus been stored away.

The great advantage of such a camera is that a number of plates may be carried within the camera, and exposed one after another with a minimum of trouble, the disadvantages being that sometimes plates refuse to change, something having gone wrong with the mechanism. There is also a liability of scratching the plates when the changing operation takes place, although both these disadvantages

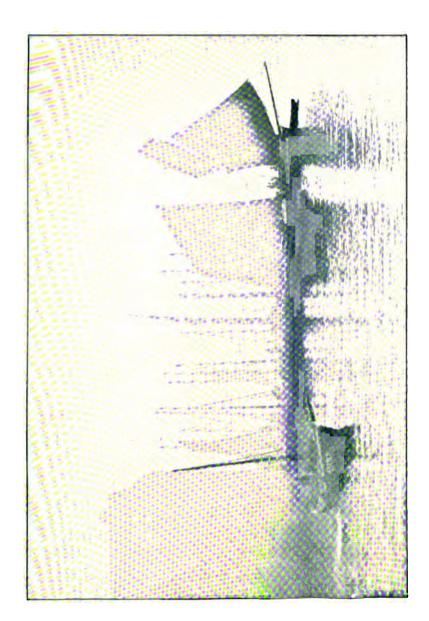
may be minimised with care.

Roll film cameras are fitted with two rollers turned by a key from the outside. The film being wrapped on one, is unwound from this and wound upon the other roller, after exposure has been made, a figure appearing through a little red window at the back of the camera showing when the fresh portion of film is in correct position. Of all the methods of changing films or plates this is the simplest. It is certain in its action. and the films taking up but little room the camera can consequently be made much smaller and more portable. By the use of a roll of black paper which forms a kind of support to the film, a spool of films which has been exposed may be removed from the camera in daylight and a new spool inserted without recourse to the dark-The chief disadvantage is that development of roll films is a much more difficult operation than the development of plates.

Many hand cameras are fitted with dark slides in which the plates or cut films are carried. They are a little bulky to carry, and the changing cannot be done so expeditiously as by the above methods, but they are open to none of the objections described above, and plates of varying speeds may be carried

to suit the exigencies of the case.

Magazine and roll film cameras are not usually fitted with a ground-glass screen at the back. Some method is therefore necessary to ascertain the position of the picture on the plate. This is done by the use of view finders fitted in the front of the camera. They are usually about an inch square, and give on a small scale a picture of the view upon the plate. In some cameras a focusing screen is so fitted that a full-sized image may be seen right up to the moment of exposure. By an ingenious



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mechanism the focussing screen closes up when the shutter is released.

Some hand cameras have a "fixed focus," i.e., all images beyond a certain distance are in focus. In others a focussing arrangement is attached, distances being indicated by a scale and pointer fixed on the outside of the camera. The disadvantage of the former is that no object nearer than the fixed distance can be photographed, the disadvantage of the latter is the difficulty of judging distances correctly. Both these disadvantages are eliminated by the use of a camera with full-sized finder as above described.

Films v. Plates. The great advantage of using films is to be found in their lightness and portability. Four dozen films weigh less than a dozen plates, and take up no more room. Moreover they can be printed from either side, a great advantage in carbon work. They are, however, much more expensive than plates, and are not so easy to develop.

The chief disadvantage of plates is their weight, but they require less skill in development, therefore the percentage of successful photographs is much

larger if they be employed.

The cheaper hand cameras are fitted The Lens. with single lenses, those more expensive with R.R. lenses. A single lens is no use where buildings are to be taken, as it does not render straight lines correctly. A single lens is to be preferred for landscape and portraiture. Spend your money on the lens and get the best lens your pocket can afford. It is quite easy to be misled by a showy instrument got up for sale, containing a very indifferent lens. Test the lens before purchasing a camera. To do this, open the shutter, take out the plate carriers, and insert a piece of ground glass the same size as plate. Cover your head and back of camera with focussing cloth. Your picture will then be projected on the ground glass, and the definition and covering power of lens seen at a glance. Note at the same time if the view in the finder is identical with the view on the ground glass.

Selecting a

(1) See if the focussing scale be true; this is often faulty with cheap cameras fitted with a focussing scale. The way to test this is to mark off along the pavement distances from the camera as given on focussing scale. Insert the ground glass in the camera, as above described; set the scale to the nearest distance, and note if the objects at a similar distance on the pavement are in focus; do this with all distances marked. If all are in focus, the scale is correct; if not it needs to be re-marked.

- (2) Carefully test plate-changing arrangement if the camera be of the magazine variety. It is annoying to get a plate jammed when far away from a dark-room. Load up the camera with used plates of right size, then carefully change each one; do this several times and see if the mechanism acts rightly. One plate at a time should drop and no more. (Advisable to do this occasionally before using camera to test if the mechanism is still in order).
- (3) Plates are often fogged because the camera is not light-tight. To test—close the lens, open the back, take out plates and carriers. Throw the focussing cloth over the head and camera; hold the camera up to strong light for some seconds. If any stray light is coming in it will be apparent.
- Fittings to
 Hand Camera.
 (1) Shutter.—Usually hand-camera shutters are too fast, hence underexposed plates; ¹/₂₀th of a second is quite fast enough for all ordinary work. If plates are under-exposed take means of slowing the shutter.
- (2) Level.—Sometimes one and sometimes two levels are supplied. These are very convenient adjuncts to hand cameras. (Annoying to find on development that the picture is spoiled because the camera was not held level).
- (3) Some of the better class of hand cameras are fitted with a rising front. This is a great advantage, as it enables one to get in the tops of buildings without tilting the camera, which is fatal to perpendicularity, unless a swing back be provided, which is rare in hand cameras.

INTRODUCTION TO THE USE OF THE HAND CAMERA.

Never attempt to take a time exposure with the camera held in the hand. The result is nearly always failure.

Thoroughly master all the workings of your instrument before you take it out to photograph. Try all the working parts and make yourself absolutely familiar with them before you expose a plate. An hour spent indoors with your camera will save much time and trouble afterwards.

Loading.—If yours be a magazine camera, this operation is most important. Plates jamming are more often caused through careless loading than through defect in mechanism. Put in each plate separately, and carefully notice if the first is in its correct position. Dust all plates before putting them into the camera; dust also back and front of carriers, and occasionally dust out the interior of camera. Carry the camera carefully, avoid swinging it about, and avoid jars, or dust will settle on the plates, and a plentiful crop of pinholes on the negatives will be the result.

In the Field. (1) Never point the camera directly towards the sun, or the result will be that you will get a "flare spot" on your negative, and it will be spoiled. The image of the sun should never be seen in the view finder; if this be remembered, pleasing effects may often be obtained by working against the light. Most of the so-called "moonlight effects" are obtained in this way.

- (2) It is not often advisable to have the sun directly at the back, so often recommended to hand camera workers, the result will be a flat picture lacking light and shade.
- (3) The best position for all-round work is to have the sun either on the right hand or the left, then light and shade will be delineated, and these go so much towards making a successful picture.

Holding the Camera.

The amateur will probably discover for himself how best he can accomplish this. The usual method is to breathe while the shutter is being opened. I sometimes tuck the camera under my left arm.

- (1) It must be held perfectly steady, the slightest jar will be fatal. Although you can take a snapshot of an express train at full speed without showing any movement, yet the slightest movement of the camera will spoil the photograph.
- (2) The height at which the camera should be held will vary with the object you are about to portray. A good height for most subjects is from 3 feet to 4 feet from the ground. If too high, an undue proportion will be given to the foreground; if too low nothing but foreground will be obtained.
- (3) Press the button, pull the string, or move the lever of the shutter gently. Don't strain it or jerk it, or you will blur the image. This is especially to be remembered when the shutter is working at a slow speed.
- (4) Hold the camera upright and level, the "level" will help you to do this. On some finders vertical and horizontal lines are ruled, and are useful. See that buildings, etc., are upright. Nothing looks worse than a lopsided building. Do not tilt the camera unless it be provided with a swing back. If tilted upwards, buildings, etc., will appear to be falling backwards, if downwards they will appear to be toppling forwards. This fault is often seen in hand camera photographs.

Composing the Picture.

The laws of composition are not to be despised even by hand camera workers. Aim at making pictures, and not mere reproductions of scenes. Even if you merely take photographs as mementoes this should apply. The majority of hand-camera workers one sees at holiday resorts know nothing of composition, hence the unsatisfactory nature of their prints.

Remember that most people are endowed with feelings. Do not therefore give offence to anyone with your camera. There are a lot of blackguards armed with hand cameras who have brought photography into disrepute by snap-shotting in people's faces, much to their annoyance, and much to the detriment of serious workers.





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Fig. 6. R. C. Ryan. R. C. Ryan.



Fig. 7.

LOOPING THE LOOP.

R. C. Ryan.

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Hints on Hand-Camera Work.

By JOHN R. SMITH.

HILE it is undoubtedly possible for a really intelligent person accustomed to accurate and careful work in other directions to take a camera, and, remembering perhaps half a dozen definite rules, to produce, with the assistance of trade development, a

reasonable proportion of satisfactory negatives, the best work can only be done when the worker understands the various photographic operations, and is able to adjust such factors as speed of plate, aperture of lens, speed of shutter and strength of light together. Some study of the direction and quality of light is necessary. The light at noon is very different from the light at seven in the morning even in summer. The direction from which the light reaches the subject is also important—the more shadow the more exposure required. A fair grasp of the variations in the actinic power of the light is of first importance.

Table of Light Values. For this a table of light values is very useful, and perhaps more satisfactory than an actinometer. A plate of fair rapidity should be used and kept to, so that one factor at least may be constant. The principle of the stops of the lens must be grasped. With modern lenses the only function of the stop is to increase depth of definition. A good anastigmat will cover sharply at open aperture, but distant and near objects will not be defined with equal clearness.

Depth of Definition.

If the object to be focussed sharply is only five yards away, it is most probable that sharp focus will only exist in objects five yards to eight or ten yards away, and, of course, as the distance beyond the five yards increases the definition will gradually deteriorate in quality. But the shorter the focus

of the lens the greater depth of definition it possesses. Hence it must be understood that, as nearer objects are focussed the distance will become indistinct unless the aperture of the lens is reduced. A little practice will enable the necessary stops to be determined.

Effect of Stops. As a rule, in English lenses each succeeding smaller aperture necessitates the exposure being doubled, hence the speed of the shutter must be slowed as the lens is stopped down. Thus $\frac{1}{10}$ sec. at f/8 must be reduced to $\frac{1}{16}$ sec. at f/11 and to $\frac{1}{12}$ sec. at f/16. Below f/16 it is not necessary to go in ordinary work, and it will be found that f/8 and f/11 will be the stops most generally employed.

A Knowledge of the Instrument in Use.

By this I mean a practical acquaintance with the camera employed. An expert photographer may be quite at sea with a strange instrument until he has grasped its special features. In hand-camera work the alterations have to be made often at a moment's notice and with great promptness, or the opportunity of securing the picture is gone. If the worker forgets to slow the shutter when he puts in a smaller stop, or if he cannot find the speed adjustment instantly, failure ensues. The man who knows his apparatus well can work it almost without looking at it.

Doing the right thing at the right Self-control. moment depends almost as much on knowing yourself as on knowing your camera. Any vacillation is fatal. Success in hand-camera work depends on being able to see the subject, to almost automatically decide on the stop necessary and the exposure required, and to be ready to make the exposure exactly at the right moment, while being all the while prepared to say "No" to the everpresent question, "Is it worth a plate?" A subject may alter materially for the worse or the better after it has caught the eye. The plate-spoiler makes his exposure and, after spending time in development, throws the negative away; the worker who can control himself stays his hand and saves his plate if the subject is not worth it.

Apparatus. The work the hand camera does is so varied that the instrument is more or less a compromise. For general work the requirements are few and simple. The lens should be a good rectilinear or aplanat, or, better, a modern anastigmat.

The shutter should be simple, so as not to readily get out of order or be affected by changes of temperature, and the more readily the speeds can be set and read the better. The "roller blind" and the "between-lens" shutters are the two best-known types. The former gives greater efficiency, and the speeds are more likely to remain fairly accurate; the latter is adapted to give slower speeds, which are very useful, and is rather easier to manage when changing speeds, but is apt to be deranged by dust or grit getting into the mechanism. The speeds, too, are not always accurate, and when the shutter is set for 100 sec. it may be working at 100 sec.

The efficiency is not great—that is, when set for any speed, say is sec., the shutter is not fully open for quite half that time, so that the exposure is shorter in reality than it is supposed to be. All shutters (except the focalplane) take an appreciable time to open and close, but the "roller blind" allows more light to pass during exposure than the other type. There are cameras on the market with special shutters fitted with speed adjustments consisting of pneumatic brakes. These adjustments are rapidly set and very reliable; but, of course, such cameras are not the cheapest.

Focal-Plane
Shutter.

The focal-plane shutter, of course, gives the greatest efficiency, and, practically speaking, twice the light reaches the plate for a given exposure when this type is used. There is no reason why it should not be fitted on cameras for ordinary work. It can be made to work as slowly as 10 sec., but to avoid distortion slow speeds must be obtained by widening the slit, rather than by moving a narrower slit more slowly across the plate.

A camera may be with or without Fixed Focus focussing adjustment. If the lens and its is set for infinity, or, more usually, Disadvantages. a trifle further from the plate than the infinity focus, objects will be in focus with a 6-inch lens at f/6 from 50 feet distant and beyond. at f/8,30 feet distant and beyond, and at f/11,27 feet and beyond. If a 5-inch lens is employed (though this is rather too short a focus for satisfactory perspective), then the distances become 35 feet, 26 feet and 19 feet respectively. It will thus be seen that if a camera has no focussing arrangement, objects nearer than 19 feet (with a 5-inch lens) cannot be obtained sharply defined, even when f/11 is used. In order to get sharp pictures of nearer objects three courses may be adopted.

The lens may have a supplemen-Magnifiers. tary lens fitted in front of it which will slightly shorten its focus and so give a sharp image of any near object. These supplementary lenses are in reality "eyeglasses" for the camera, and are usually known as magnifiers. The rule determining their selection is, that if an object 10 feet away is required sharp, the magnifier used must have a focal length of 10 feet, and so on. Three magnifiers are usually sufficient, enabling objects at say, 14 feet, 10 feet and 6 feet, to be focussed sharply. If copying or flower studies are done, then perhaps others may be needed. It may be well to observe that this rule for deciding the focal length of "magnifiers" is only correct when the lens of the camera is set for "infinity," but the slight difference in position, viz., for an object, say. 50 feet away, will not make any serious difference to the use of the magnifiers in every-day work.

Focusing
Adjustment
in the Lens.

The lens itself may provide the
focusing adjustment. That is, the
lens may be so constructed that
by varying the separation of the
glasses its focal length is altered. The Cooke lens
and the Ross' Homocentric may be so made, and
will then focus from three yards to infinity by a
rotating adjustment of the front glass.





The end of the furrow.



Fig. 9.

L. H. West.

CAPPYING A CAMERA



Fig. 10.

CYCLE AND CAMERA.

L. H. West.

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Another method, of course, is the Focussing well-known one of mounting any Jacket. lens in a focussing mount. iris diaphragm is worked by the rotation of a ring on the front of the lens, and the spiral focussing arrangement is operated by a second ring behind the iris, with a scale of distances engraved. The spiral slot causes the lens to move backward or forward in its jacket.

With either of these methods there Rigidity. is the great advantage that the camera may be rigidly constructed and perfect parallelism obtained and maintained between the front board and the plate. The axis of the lens is thus always at right angles to the plate, and the best is obtained from the extremely delicate modern

anastigmats.

Another method of focussing is the Rack. ordinary one seen in stand cameras, viz., that of adjusting the distance between the front board carrying the lens, and the plate, employing a lever, a worm screw, or a rack and pinion to effect the movement.

A hand camera proper need not Swing Back. be fitted with a swing back. It is not needed for the great majority of hand-camera shots, and if serious architectural work is to be done, a hand stand camera, such as one of the folding types, had better be carried and used as a stand camera, which it really is. A very important movement however is the rising Rising Fronts. front. This should be available for both upright and horizontal views and should give a movement of at least a quarter of the length or width of the plate. The advantages secured are that excess of foreground can be cut off, and very often the top of a building or of trees may be included without tilting the camera.

Two finders and two levels are Finders and almost essential for accurate work. Levels. Slow moving circular levels answer every purpose, and as they only cost 1/- each they may easily be fitted after a camera has been purchased. They enable any buildings to be secured with vertical perpendiculars and in other cases

ensure horizontal horizons. Note the difference between inclusion of buildings and serious architectural work.

The method of plate changing Plate demands careful consideration. Changing. Plates may be used in a magazine changer, in which the exposed plate is dropped into a well, or they may be carried in sheaths and a bag changer, or dark slides may be Bag Changer. used. For serious work the automatic changer is rather risky as the plates are more or less loose and liable to stir up dust. The great merit is that changing is rapid, occupying only about a second, and another plate is at once avail-Bag changing takes longer, say 5 to 10 It is more compact and plates do not seconds. rattle about. Dark slides are most bulky of all and take longest to change, but they are more sure.

A Home-made Hand-Camera of Great Efficiency. It has been suggested that if workers bought a focal-plane shutter and a lens, fixing the shutter at one end of a box and the lens at the focal distance at the other end, and

using dark slides in the grooves with which the F.P. shutter is provided, all the essentials of a handcamera would be available. There is no doubt the lens and shutter are the most important matters, and such a suggestion is useful, but only as the germ of an idea. I would modify it by saying, have the shutter square so as to turn like a reversing back, have the lens either with focussing front glass or in focussing jacket, and have a rising front one way, i.e., vertically. Such a camera would be compact, and with one level and one finder would answer for all general hand-camera work and for a good deal of special work as well. It is, in fact, difficult to say what it would not do except that it could not be used with lenses of long focus. lens might be outside on the actual front of the camera but it would be better to have an inner front and a circular hole in the actual front so that the lens is protected from damage.

Specialised Work.—It is quite possible that for certain kinds of work special features may be required in a camera. The inclusion of these will

render it more effective for that particular type of work, but in all probability less effective for other work. I will briefly indicate some special requirements.

Pictorial Work.—Larger finders are an advantage, enabling the view to be better seen and composed. A camera of the reflex type, showing a full-sized image, is good from this point of view. The camera may have long extension, so that long-focus lenses, or a single combination of a convertible anastigmat or a telephoto lens may be used. All these features tend to increase bulk and weight. Dark slides may be used so that a variety of plates may be carried—for instance, both ordinary and orthocromatic. If a lens of fairly wide aperture, say f6, be used, exposures of $\frac{1}{10}$ of a second may readily be given with ortho plates and a light filter.

Figure Studies.—A wide aperture lens is necessary for work in narrow streets or courts and for working in a poor light. The camera generally must be unobtrusive. Rapid changing is an advantage, as groupings of figures are constantly varying. The Geddis mirror, fitted in front of the lens so that the camera is pointing in another direction, tends to prevent figures appearing self-conscious, as they do not know they are being photographed.

Waves and Seaside Work.—A camera such as I have suggested, with F.P. shutter at one end and lens at the other, but the dark slide must be closed in with a door and a piece of patent plate glass over the hole on the front, and the whole covered in waterproof material to exclude (if possible), the sea water.

Architectural Work.—In hand camera proper, lens of fairly short focus and ample rise to front. Better to use hand-stand type on a stand, and have the advantages of a stand camera. A hand camera is only a makeshift for serious architectural work.

Special High-Speed Work.—Such as sports, animals, express trains, yachts, etc., etc. A wide aperture anastigmat f/56, is essential, so as to be prepared for emergencies, poor light, or extremely short exposures. A focal-plane shutter is essential, and the most rapid plates obtainable. For some

work, such as express trains, the place the train will occupy may be focussed for, and the plate inserted, the exposure being made when the train reaches the position. For sports, animals, and so on, it is an advantage to have a camera of the reflector type (fitted of course with focal-plane shutter). so that the moving object may be followed, the exposure being made when it is in a suitable position. For development in batches. "stand" development may be adopted, em-Development.* ploying a very dilute developer in a grooved tank, development taking several hours. the plates being covered up and examined from time to time. Or 6 or 8 plates may be developed in a flat dish in the ordinary way, having in readiness two smaller dishes containing in one case a developer with a maximum of alkali, and in the other case very little alkali, but a preponderance of bromide and pyro or any other developing agent which is being employed. Any plate lagging behind is promptly placed in the dish containing the developer strong in alkali. A plate appearing over-exposed may be placed in the other dish, and in the stronger developer will more readily gain density.

For developing abnormally short Developing exposures, a powerful developer Brief such as metol is desirable, if not Exposures. essential. The developer should be made up without bromide. Development will probably take some time, I have spent nearly an hour developing very brief exposures. If the detail appears to be well out it may be useful to add either pyro or hydrokinone to aid in the building up of printing density and the developer should be so made up that this addition may be readily made, the metol being in one solution and the pyro or hydrokinone being in another.

It must not be assumed, however, that a rapid exposure, such as say 1/500 sec., will of necessity demand special treatment. With best June light, most rapid plate, lens at f/56 and fairly open subject a fully exposed plate may be obtained in 1/500 sec.

^{*} Vide The Practical Photographer, No. 6, "Developing and Developers," p. 60.



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DATE AND DEATH

High Speed Shutter Photography.

By R. CHAPPELL RYAN.

HE hand camera is essentially the instrument for this class of work. Before attempting such work the beginner should be fairly proficient in the use of a hand camera for the average subject with the ordinary shutter working at 1/5 to 1/100 of a second. The photo-

graphy of rapidly moving objects must be regarded as one of its extreme uses, but to the ambitious it will afford a fascinating and absorbing branch, will develop faculties for observation, and bring out every bit of originality the worker possesses.

The Shutter.—A hand camera to which is fitted a focal-plane shutter with speeds ranging from 1/200 to 1/1000 of a second is a sine qua non. Preference should be given to the type giving slow speeds in addition; also one that will open to the full width of the plate for time exposures. The lens must be of good quality and have an intensity, or working aperture of not less than F/6·5, and preferably a lens of F/4, or F/5, should be selected.

The Plate.—The plate must be of the highest degree of sensitiveness coupled with good quality, fresh from the makers, and of the same brand the worker is in the habit of using.

The Camera.—The beginner will doubtless choose the 4-plate size. Considering its initial cost, light weight, and the possibilities of some failures, this size is to be recommended. The writer, however, prefers a larger plate for the following reasons:—a wider angle may be utilised to afford more scope for the after-treatment of the picture, as one does not always succeed in getting the principal object in exactly the desired position; the larger size also gives the option of making presentable contact prints.

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Development.—Where negatives are made with the idea of enlarging the smaller plates may be employed, a soft thin negative should be aimed at and a developer used that will produce a negative of a neutral black colour, such as metol, rodinal, metol and hydroquinone. All of these are suitable for developing plates that have received very short exposures. For the larger plates use the following:—

A.—Pyro, 60 grs.; metol, 45 grs.; potass. metabisulphite, 120 grs.; potass. bromide, 20 grs.; water, 20 ozs.
B.—Soda carbonate, 4 ozs.; water, 16 ozs.
Use equal parts of A. and B.

This is very energetic and will bring out all possible detail with plenty of contrast, the colour of the negative, however, is not so suitable for enlarging by artificial light unless of exceptional brilliancy.

All developers should be diluted with an equal volume of water and used at a temperature of 65

degrees Fahr., winter and summer.

Exposure.—The distance at which an object is taken should be based upon its size, rate of movement, and due regard to the safety of the operator. It is never advisable to try and cover the whole of the plate with a single figure, or group of two figures. The nearer the object and the shorter the exposure required. This increases the risk of movement showing and also of under-exposure. middle distance on the focussing scale of the principal object is always easy to judge, will be found convenient for nearly all subjects and is a useful standard for the beginner, with the additional advantage that the background is nearly always out of focus, giving more value to the principal object. It is obvious that a brilliant light is essential to obtaining a fully exposed negative with such brief exposures of 1/250, 1/500, 1/800, up to 1/1000 part of a second, and the tyro may accept the speed indicator of all first-class focalplane shutters as being approximately correct. Do not be discouraged by the sudden fluctuation of the light, especially in the summer time. There is a wide range of subjects from which one can choose, e.g., children at play, girls skipping, etc., are nearly always to be found. There is little likelihood of the charge of imitation on account of the variation in the models.

HIGH SPEED SHUTTER PHOTOGRAPHY.

Railway trains, motor cars, horse-racing pictures are also obtainable in most places, while the seaside in the summer time will provide an endless variety of diving, water polo and yacht races.

In the case of trains, smoke and steam are of great value in showing motion, and wherever possible a background should be chosen to give sufficient contrast; a curve in the rails is much more pleasing than a straight line. Motors should show a good trail of dust in the rear, and the selection of the background coupled with a bend in the road is desirable.

View Point.—It is hardly ever advisable to photograph an object quite broadside on. Show a portion of the front, and one side, wherever possible. As a general rule the lighted side is preferable.

Though the light is at its maximum from eleven till one, it is not always advisable to confine oneself to working during this period, the angle at which the light falls at 10 a.m. and 3 p.m. gives, in my opinion, a much better result.

Undoubtedly the crux of the subject lies in the ability of the operator to judge the right moment for the exposure and the subsequent careful development of the plate. Avoid as much as possible all semblance of "flurry." Devote special attention to the order of preparing the camera. The stop will be first selected. Our choice being based on the condition of the light and exposure suitable for the subject. As a rough guide the reader may refer to figs. 3, 6 and 7. In conclusion let me advise the photographer to aim at originality in his subject, the rendering of motion, atmosphere, good composition, balance, and strict attention to the details of development. Remember to give as much, and not as little exposure as the subject will permit. A subject that could be taken perfectly sharp with a lens of 5 in. focus on a quarter-plate, with an exposure of say 1/500 sec., with a longer focus lens of say 10 inches under the same conditions would show movement, giving less depth of focus, and the possible semblance of under-exposure at the same aperture.

Hints to Hand-Camera Workers.

By S. O. MAW.

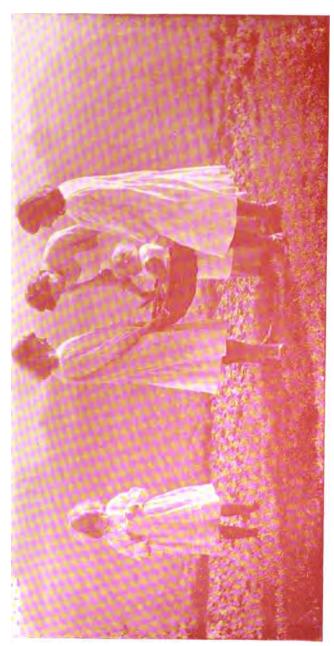
OLD the camera firmly in the left hand, and, if a long exposure is to be given, press it against the body, or rest it on the knee, while the right hand is used as an additional support, so placed that the thumb or first finger is in a convenient position to "press the button."

Avoid Shaking the Camera, and never risk giving more than $\frac{1}{8}$ sec. exposure without setting up the tripod or steadying the camera on some equally convenient object, as nine times out of ten the camera would be shaken and the picture spoilt.

Simplicity.—Simplicity should be one's aim in making a truly pictorial landscape. The introduction of figures is seldom an improvement, though, if it is desired to suggest life and movement, a few village children will add much to the charm of a rural landscape; but even then avoid overcrowding, which leads to scattered interest, confusion and weakness.

Backgrounds.—Always take care that the background for a figure is not a blank sky, in which case the tone-rendering of the face will be unnaturally dark, even though the sun be behind the camera. Place your figure a short distance from some dark object; choose a quiet, unobtrusive background. If it is wished to give the figure greater prominence the former may be slightly out of focus. A figured screen or a speckly, flowering shrub would be the worst possible backgrounds to choose, as they would annoy the eye and detract very much from the importance of the face.

Position of Figures.—If the subject is posed with bent head or takes a stooping attitude, be sure space is allowed in the picture for head or figure to raise themselves erect in one's imagination, otherwise, however elegant the pose, the beholder will surely complain of stiff neck or back-ache after a few moments' gaze!



IN THE SUNSHINE TIME OF LIRE.

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Some Optical Matters concerning Hand-Camera Work.

By C. WELBORNE PIPER.

HEN an object plane at a certain distance from the camera is in sharp focus all planes at other distances are, strictly speaking, out of focus; but, practically, that fact will not be apparent in the case of objects situated within certain limits of the

one plane in true focus. These limits bound what is called "depth of field"; the nearest plane in apparent focus being the limit of near depth and the farthest plane that appears to be sharp being the limit of far depth.

The shorter the focal length of the Depth. lens and the smaller its aperture the greater its depth, and as a hand-camera lens is of necessity of large aperture it must be of short

focal length to secure much depth.

With cameras that have no focussing adjustment (fixed focus cameras) it is important to secure a maximum amount of depth, and to do this the lens must be fixed so as to bring into sharp focus a distance equal to one hundred times the square of the focal length of the lens divided by the f number of the stop. This is called the hyperfocal distance (or depth constant) of the lens for that particular stop, and when we focus upon this distance all objects beyond half the distance are in focus. Thus, with a 5 in. lens and f/8, the hyperfocal distance is 2,500 ins. divided by 8, or 26 ft., and by focussing sharply on 26 ft. all objects beyond 13 ft. are brought into focus. If we focus on a greater distance the nearest point in focus will be farther from the camera, and if we focus on a nearer distance very distant objects will be out of focus.

Knowing the depth constant we can easily calculate near and far limits of depth when focussing on any particular near distance with the

same aperture.

To find the distance of the nearest object in focus

multiply the distance in sharp focus by the constant and divide by the sum of distance and constant.

To find the distance of the farthest object in focus multiply the distance in sharp focus by the constant and divide by the difference between distance and constant.

For example: The constant for a 5 in. lens with stop f/8 is 26 ft., therefore, when focussing on 10 ft. the near limit of depth is 260 ft. divided by 36, or about $7\frac{1}{2}$ ft., while the far limit is 260 ft. divided by 16, or $16\frac{1}{2}$ ft. All objects from $7\frac{1}{2}$ ft. to $16\frac{1}{4}$ ft. from the camera are therefore in focus.

Excepting with very perfectly corrected lenses the rules given only apply to objects represented in or near the centre of the plate. All distances are supposed to be measured from the front principal focus of the lens.

Focusing Scales.

A focussing scale can be marked by trial in the camera for certain short distances, or for infinity, but generally the marks for long distances have to be calculated. The following two rules are most easily applied.

The relative distances from the infinity mark to any two other marks on the scale are always inversely proportional to the distances represented by those two marks. Thus if one mark on the scale is known to represent 10ft., another mark twice as far from the infinity mark represents 5 ft., and one only half as far from the infinity mark represents 20 ft. When the infinity mark and one other mark have been found by trial, other marks can be set out by the above rule. It is sometimes more convenient, however, to directly mark the scale for a particular distance, and this is easily done by the following rule.

The scale distance between the infinity mark and any other mark representing a particular distance is always equal to the square of the focal length divided by the distance of the object in inches. Thus with a 5 in. lens the space between the infinity mark and one representing 5 ft. is 25 in. divided by 60, or $\frac{1}{10}$ in.

The distances shown should not be selected haphazard, and the best series is the following. The first mark from the infinity mark should show the hyperfocal distance with the stop most often

OPTICAL MATTERS CONCERNING HAND-CAMERA WORK.

used (see Depth), and the succeeding marks should in turn be 1/2, 1/3, 1/4, 1/5 etc., of the hyperfocal distance. Thus, with a 5 in. lens and f/8 stop the complete series should be Infinity, 26', 13', 8'-8'', 6'-6'', 5'-3''. These marks will all be equal distances apart, their separation being always equal to $\frac{1}{100}$ in multiplied by the f number of the stop, or to $\frac{1}{100}$ in

in the example.

This series of distances represents consecutive depths; which means that if we focus on any one distance with the stop allowed for, the two adjoining marks show the respective distances of the nearest and farthest objects in focus. In the assumed case if we focus with f/8 on 13 ft. depth extends from 8'-8" to 28'. If we halve the aperture depth is shown two divisions away from the distance in sharp focus, so that when focussing with f/16 on

13 ft. depth extends from 6'-6" to infinity.

Although the fine quality lenses Lenses. now obtainable have been for the most part designed especially for hand-camera work it does not follow that the most rapid and expensive types are always desirable. They are really only necessary for very special work, and not a few photographers waste money on lenses that are far too good and even unsuitable for their requirements. With any of the ordinary types of shutter working at the lens, an aperture larger than f/8 is very seldom required, and, excepting when the camera has a rising front, the lens need not sharply cover a space larger than a quarter-plate. Hence moderate priced lenses of the rectilinear or aplanat type will often fulfil all requirements very satisfactorily. An anastigmat will give critically finer definition over a larger plate, and is therefore a very desirable lens when a rising front is used, but it is not necessary for its aperture to be over f/8 for ordinary work. With exposures under onehundredth of a second on rapidly moving objects an aperture of f/6 or f/6.5 is desirable, and lenses with this rapidity may be obtained of the rectilinear, aplanat, or euryscope types. Few of those lenses will, however, cover a quarter-plate to the margins with such large apertures and it is much better to procure an anastigmat. Even with a

focal-plane shutter it is not necessary to use larger apertures than f/6, excepting in very special circumstances, and lenses of about f/4 are only required for extremely rapid motion in a bad light and for indoor work. Such lenses are useful sometimes, but it is generally best to reserve them for special occasions, as they have no advantages when stopped down to ordinarily useful apertures.

The excessive covering power or width of angle possessed by some of the highest quality lenses is undesirable for pure hand-camera work, as the small plate only utilises a portion of the light and the rest is reflected from the sides of the camera and

fogs the plate.

Single lenses are often used in cheap hand cameras and if of good quality they will do very useful work, though they can never be rapid enough for very brief exposures. As a general rule they will not cover a quarter-plate well at an aperture over f/11, and it may be as well to warn photographers that not a few of the f/8 single lenses fitted in cheap cameras are really f/11, the number having been altered to deceive the purchaser.

The telephoto lens of ordinary type is not generally fast enough for very quick exposures and the special type known as the Adon is practically

the only kind suitable.

Shutters. A good shutter should be of high efficiency, by which we mean that the full aperture of the lens should be wide open during the greater part of the time of exposure.

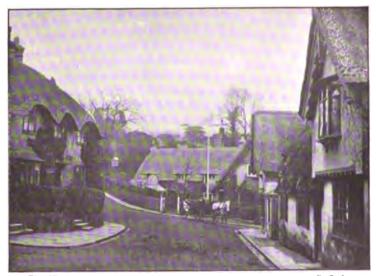
The highest efficiency is possessed by the focalplane shutter, which is a blind with a narrow slit moving across and close to the plate. This is the only type of shutter suitable for very brief exposures from 1/100 to 1/1000 sec. The speed is adjusted in two ways, by altering the width of the slit and modifying the speed of the movement. As different parts of the image are exposed in succession a certain amount of distortion is introduced if the object is in rapid motion, and to avoid the effect of this as much as possible you should not at any time use a smaller slit than is absolutely necessary.

In Puris naturalibus.





Fig. 14. YOUTH AND AGE.



THE VILLAGE INN.

P. C. L.

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OPTICAL MATTERS CONCERNING HAND-CAMERA WORK.

Shutters fitted to the lens are of much lower efficiency than focal-plane shutters, but the most efficient types are those that open first and close

last in the centre of the lens aperture.

With any type of shutter that works close to the diaphragm efficiency is greater with a small stop than with a big one, so that halving the aperture sometimes only reduces the exposure to \(\frac{1}{2}\) instead of \(\frac{1}{2}\). With shutters fixed behind or in front of the lens efficiency does not vary with the stop, but in the former position a shutter is, as a rule, rather more efficient than in the latter one.

When the exposure is made by an aperture in a blind or metal plate crossing the lens the efficiency is lowest when a circular aperture is used. The edges of the aperture should be straight if the shutter is fitted outside the lens and convex if it is at the diaphragm slot. In all cases the shutter aperture should be at least as large as the space it has to uncover. If smaller, their efficiency is seriously impaired, while the image will very likely show uneven illumination.

The Rising Front in Hand-Camera Photography.

By C. J. DAVIES.

OW that many hand cameras have rising fronts, difficulty is often experienced in guessing to what extent this adjustment should be employed. The following method has proved useful in practice:—

Procure a circular plumb indicator (Fig.32) and graduate the edge in eighths

of an inch. Attach it correctly to the side of the camera, and focus on some high building. The camera must now be tilted until the plumb indicator has swung through one division, and the amount of view noted on the focussing screen. Level the camera and obtain the same amount of



Fig. 82.

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view by use of the rising front, and make a mark indicating the amount of rise employed. A similar mark on the front may be made for each division on the plumb indicator, and the latter may be

graduated to show either rise or fall.

To use the indicator, point the camera at the object and tilt until the amount required is visible on the finder, then note the position of the plumb indicator and set the rising front in accordance with it. The camera must now be held level and the exposure made.

This indicator is indispensable on an ordinary roll-film camera, and will be found a useful adjunct

to any camera when used from the hand.

The Hand Camera amid Sports and Pastimes.

By LEONARD H. WEST, LL.D.

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HOUGH the photography of sports and pastimes may not be a very exalted branch of photography, it nevertheless has a double interest—(1) in the portrayal of typical British amusements, and (2) to the actual participants in the particular game or sport and to their friends.

Difficulties. It is, however, subject to certain special difficulties: (a) We cannot always choose our own time for securing the photograph; it is often a case of now or never, and at the moment conditions (e.g., light) may be unfavourable.

To make a photograph effective as a portrayal of a sport or pastime it must catch some characteristic or point of interest. A photograph of a tennis match, showing four players standing inactive in the four courts, would have no point. It should show the striker in the act of serving, or a player taking a return; the same principle applies to any other game or sport.

THE HAND CAMERA AMID SPORTS AND PASTIMES.

(b) Again, rapidly moving objects will in the majority of cases have to be dealt with, e.g., horses or hounds in hunting, racing, shooting, a cast or landing the fish, the running or jumping athlete,

the bowler and batsman in cricket, etc.

(c) In many cases defective light will be a great difficulty. Two of the most attractive sports, hunting and shooting, are in season when the light is the least actinic during the year, and the same applies to football, hockey and other pastimes. These difficulties may be best met by:

The camera should be one which is I. Suitable quickly available and readily opera-Apparatus. ted. This almost necessarily excludes anything but a hand camera. The box type with fixed focus has advantages. If not "fixed focus" there should be a readily adjustable scale. Where one has to act in the field, and on the spur of the moment, it will probably be found by most handcamera users that it is much easier to correctly judge one distance from your object (perhaps 18 feet, of course readily ascertainable) within which you must never trespass, than to correctly judge varying distances from 5 to 50 feet and adjust the pointer on your scale accordingly.

Again the shutter must be capable of being quickly set and quickly released. For some sports bulb and tube would be very much in the way.

A good view-finder must be relied on, preferably the full-sized view of the "Reflex" type, if cost of

camera is not a consideration.

2. Rapidity of plates or films. One would naturally select a rapid rather than an ordinary plate. If other objections do not overcome the gain in rapidity and fine definition, plates are to be preferred to films.

Shooting. But for some purposes, e.g., if used in the shooting field by one who is also carrying a gun, and must not on any account keep his companions waiting, a roll film can generally be more quickly changed than plates.

Moreover, for the "rough and tumble" of some sports, e.g., fox-hunting in the Lake District, the chances are that plates may suffer seriously from

breakage.

(3) A third means of assistance against the difficulties above referred to will be a lens working at a large aperture, say F 6.5 and the most effective shutter, (which is, of course, the focal plane) if available, with the camera selected.

Hunting. The modes of carrying the camera. If hunting and on horseback, a camera of the "folding pocket" type can be carried in the pocket, or may be strapped from the shoulder. Any other form may mean injury to the rider in case of a fall. If hunting on foot, a box camera slung by strap over the shoulder, will be carried

easily and safely.

This mode of carrying will also best serve the shooting man, who wishes to obtain photographs of actual incidents of the field and at the same time participate in the sport himself. One of the accompanying illustrations, (Fig 9) shows a box camera attached by a strap passing over the left shoulder, and resting on the hip. In this way the camera never interferes with the use of the gun, is ready for use at a moment's notice, the photographs taken, and the film changed without keeping the other guns waiting. A cover can easily be improvised to protect the camera against injury from showers.

is a pastime, to which Photography Cycling is an excellent supplement, and here, of course, something beyond hand camera work alone may be readily undertaken. With a carrier attached to the rear of the bicycle, the photographer can secure for himself a very complete outfit,—the accompanying figure 10 shows a box containing a combined 4 x 5 hand and stand camera, and four dark slides, focussing cloth, and case of supplementary lenses, while the small box behind it is a box camera for snap-shot work, where there is no time for the adjustment which the larger camera would involve. The tripod is attached to the top bar of the frame, and the bicycle lamp with the circular face makes an excellent darkroom lamp for changing plates and film when touring, if a piece of red fabric which you can carry in a pocket-book, is trapped into the face.



THE HAND CAMERA AMID SPORTS AND PASTIMES.

is another pastime which gives scope for hand-camera work, and probably of a more pictorial character than possible in most forms of such work,—the strong light of sea, and (to a less extent) river scenes, allowing of short exposures, and sky, water, reflections and boats, giving many possibilities.

In most cases of Sports and pastimes it is desirable to get as near the object as possible, otherwise the objects will appear almost insignificant.

On the other hand, where it is possible to get near the object, bear in mind the considerations as to focus already referred to, and do not get so near as to throw the object out of focus, or if using the scale, be careful not to misjudge your distances.

Lastly, remember that in photographing sports or pastimes, they come first, and the photography second, and don't interfere with the players, or break the rules of the sport. For instance, do not get in the way of hounds which have checked, and are trying to work out the line of the fox on a cold scenting day, or you may hear from the Huntsman some opinions on photography you will not appreciate!

Moving Objects:

A Note for H.-C. Workers.

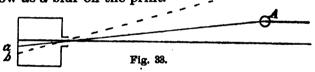
By A. G. WORKMAN.

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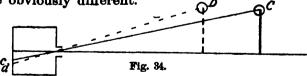
AND-CAMERA workers are chiefly interested in moving objects, e.g., trains, sailing boats, waves, animals, human beings. Successful negative making will therefore depend upon so adjusting the shutter as to give time enough for plenty of exposure without showing serious movement of the

object. The hand-camera man may conveniently divide all movements into two kinds. First, objects moving towards or away from him, i.e., along the line of sight or axis of the lens; as, for example, a railway train entering or leaving a station as seen from the platform edge, or from a railway arch crossing a straight bit of line. Second, objects

moving across the line of sight; as, for instance, a train seen "broadside on" from a field, or street traffic as seen from the pavement when looking straight across the street, or water falling down a cascade, etc. Of course, it seldom happens that we have to deal with objects which move exactly along the line of sight, but generally we can say whether the direction is nearer the first or second class of The difference is important, as the accompanying diagrams will show. Take the case of a train, and suppose the heavy line A to represent the face of the engine moving across the line Fix attention on, say, one of the buffers. represented by the small circle at A, Fig. 33. On the ground glass or plate of the camera A would be represented by a. Now suppose that in one second of time A moves to B. This on the plate corresponds to a movement of the image from a to b of a b be more than 1-100th inch on the negative it will show as a blur on the print.



Now let us change our position, so that we see the engine front coming straight towards us, i.e., along the line of sight, as in Fig. 34. Here C represents the buffer, which in one second of time moves to D, and during this time the image moves from c to d on the plate. It is very easy to see that the movement c d is much less than the movement a b, so that the shutter speeds required in the two cases are obviously different.



Instead of C moving to D, we may imagine it moving to F or to G, Fig. 35, for instance; but so long as D, F and G are in a straight line with the lens the position of the image in all three cases

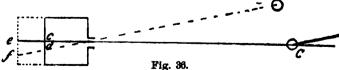
MOVING OBJECTS: A NOTE FOR H.-C. WORKERS,

would be the same, vis., d. But there is also the size of the moving objects to consider, for objects moving towards the lens, as from C to D, give us an increasing size of image as well as a change of position. Similarly objects moving away from us, as from C to G, give a reducing size of image. It is only when they keep the same distance from the lens as when moving from

lens, as when moving from C to F, that they retain the same size on the plate, Figs. 35, 36.

One other matter must be noticed, vis., the distance betwen the lens and ground glass or plate. This in turn depends upon two things, vis., the focal length of the lens and the distance of the object.

Increasing the focal length of the lens increases the distance between the lens and plate, Fig. 36, increases the size of the object, and increases the displacement of the image. Thus the displacement cd with a short-focus lens becomes ef with a longer-focus lens. Roughly we may say that the displacement is proportional to the focal length employed. Suppose we are using a 5-inch lens and cd is just 1-100th inch. (This is the practical limit of movement allowable.) Changing this lens for an 8-inch lens our displacement, e.g., Fig. 36, would be 8-5ths \times 1-100th, or say 1-63rd inch—an amount that would show a blurred image in the print.



Again, if we go nearer to our object we have to increase the distance between the lens and plate, which brings us to the same state of affairs as though we had retained the same standpoint and used a longer-power lens.

Clearly there is no time to make elaborate calculations just before a shutter exposure is to be given. We must therefore be prepared beforehand with some such table of moving objects as that given below, and take it as our guide until the fruits of experiment or experience show that it can be dispensed with.

A Table showing the Slowest Shutter Speeds available so that the image of a moving object may not be displaced more than τ_{0}^{1} inch with a lens of 5-inch equivalent focus:—

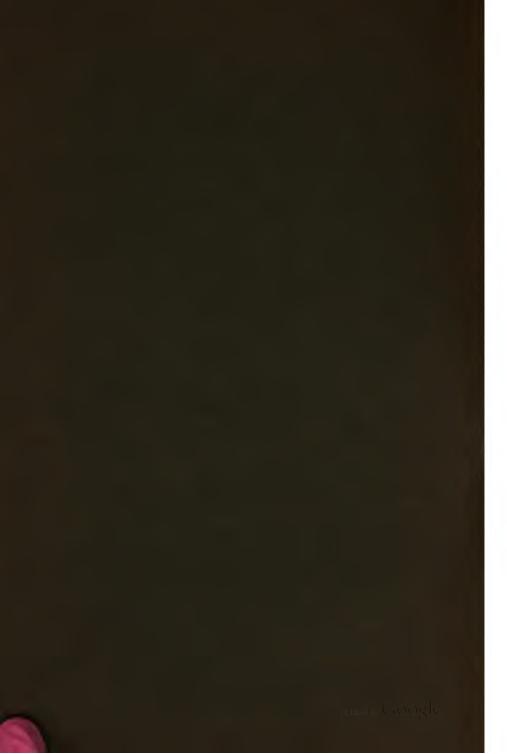
Rate of moving object.		Examples (see below).	Distance of moving object from lens.		
Feet per sec.	Miles per hour.		Quatr. mile. Secs.		100 feet. Secs.
1 2 3 4 5 10 22 44 88 100 1000	2 2 2 3 3 7 15 90 60 68 680	Loitering Strolling Children walking Adults walking Children playing Football, cricket, etc. Trotting horse, cycle Galloping horse, motor Express train Flying birds Projectiles	3 1 m m m m m m m m m m m m m m m m m m	The population of the property	10 15 10 15 10 10 10 10 10 10 10 10 10 10 10 10 10

The figures are to be taken as convenient approximations.

Loitering crowds; people standing about a market-place, etc., cattle grazing, etc. Strolling, i.e., slowly walking, dawdling about, cows walking slowly, sheep grazing. Children walking quietly, horses or oxen ploughing. Adults walking at an ordinary speed of three miles an hour, children playing such games as marbles, rounders. Adults playing cricket, tennis, football, rackets, etc. Trotting horse, cycling, slow train, waves. Galloping horse, men racing, motor cars, trains, waves. Express train at full speed.

It will, of course, be understood that the above shutter-times are the minima or slowest available speeds for normal conditions; but there are obviously many conditions which have wide variations. Consider a game of cricket. We may have





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the moment of changing an "over," men strolling, or a return after a blank stroke, or the players rushing for a "tight fit." Again, we may have men running at a comparatively slow speed in a

mile race, or sprinting for 100 yards.

Turning again to Figs. 33-36, a moment's consideration will show us that when the direction of the moving object is such that it does not change size, i.e., keeps the same distance from the lens, it has the greatest displacement on the ground glass. Thus had C moved in the direction of F for a distance equal to CD or CG, then F would be considerably beyond the line DFG. This is shown in Fig. 33, where the image displacement CD is considerably greater than in Fig. 34.

In the above table the calculations have been based on the assumption that the image is moving across the line of sight, *i.e.*, as in Fig. 33. This may be taken as practically equivalent to the maximum displacement, except when the object is near the

camera.

It almost goes without saying that where negatives are being made for the purpose of enlarging we must take extra care about adjusting the speed of the shutter, so that when the enlarged image is made the enlarged blur may not exceed say 1-50th inch. The reason why we may allow a greater blur in an enlargement is simply that small contact prints are usually examined at a normal distance from the eye, say 12 inches, while enlargements, e.g., 20×16 or more, are generally viewed at say 3 feet or so, and at this greater distance a 1-50th inch blue would not be more noticeable than 1-100th inch blur seen at 10 or 12 inches from the eye.

Similarly, if the negatives are for lantern slide making, we must bear in mind the size of the picture on the screen and the average distance of the spectators, then make allowance for the permissible blur, bearing in mind the nature of the subject. For instance, a greater amount of blur would be permitted in the case of splashing waves than in the case of a skipping rope. In the former case we look for general movement; in the latter

we only look for movement of one thing.

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The Manipulation of Films.

By A. M. CLARKE.

EEING that so many films are now-a-days used by hand-camera workers, it has been suggested to the present writer that a chapter of practical hints on the manipulation of films would be acceptable to those workers who have hitherto confined their attention to glass plates.

First: They take up very much less

room. In travelling this is a very

chapter, then, is for those who have had no previous experience with films.

Why Use Films?

material advantage. A dozen flat films do not occupy more space than two or three glass plates. Second: They are much lighter in weight; another great gain to the traveller, especially if a cyclist or pedestrian. To the climber this is a feature of special advantage. Third: They are practically unbreakable. A package of films may be tossed from one end of the room to the other with little risk of damage. This can hardly be said to be the case with a box of glass plates. Films may thus be sent through the post if rolled on a spool or packed between a couple of sheets of card. Fourth: They can easily be retouched on either side. This gives them an advantage in the hands of the capable pictorialist. Fifth: Being so much thinner than glass, there is correspondingly less light scattering by reflection, i.e., less halation. Sixth: Also this thinness enables them to be printed either way round with practically no loss of defi-This is a gain in the matter of cloud printing; also in the carbon single-transfer process, which requires a reversed negative to give a nonreversed positive. Seventh: In the majority of cameras arranged to take roll films the used spool may be removed and a new one put in without recourse to a dark-room for changing. In the case

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of certain cut films this system of daylight chang-

there are also certain "changing boxes," which enable one to change glass plates without retiring to a dark-room. Eighth: Films being flexible is not an unmixed blessing. The flexibility is a convenience in rolling, in combination printing, and at times useful in other ways; but this flexibility means a tendency to curl during developing, fixing, etc., and this curling involves special precautions and care, which are not needed with glass plates. Ninth: This is a "con." rather than a "pro," viz., the consideration of cost for films are more costly than glass plates. Tenth: This is an open question, vis., the keeping property of films or plates. Opinions vary very widely on this point, the general tendency going to show that it is undesirable to keep films longer than necessary, though they have been kept in good condition for long periods, but that care should be taken to guard them from heat and damp.

Films are of two kinds, vis., rolled or spooled and cut or flat. Various film-holders are on the market for holding cut films, so that they may be manipulated more easily during development, etc., but these film-holders are a luxury rather than a necessity.

We may commence by developing Developing an exposed roll of a dozen nega-Roll Films. tives. Two courses are open to useither to develop all twelve exposures as one long strip, or cut up the roll into single pictures. In the former case we may buy various forms of rotating machines, so that by turning a handle the whole length of the film passes through a trough of developing solution; or we may seize each end of the strip in one hand and, with a see-saw up-anddown motion of the two hands, pass the film through a dish of developer. It has been suggested that one end of the film be held in a clip to which is attached a string passing over a pulley in the ceiling, and carrying a small weight at the other end of the string. The other end of the film is either held by the fingers or a clip and pulled to and fro, while the other hand guides the film emulsion side downwards through a trough of fluid; or, if it be desired not to put the fingers in the fluid,

certain porcelain bridge-like arrangements may be bought. The film easily slides under the bridge, and may be moved to and fro without fear, as the back of the film only touches the bridge. This strip method of developing a dozen negatives at a time seldom finds favour with the careful worker, who naturally prefers to treat each negative on its individual merits or interests, and be free to modify its treatment without similarly manipulating other exposures. In short, the strip method may be called the lazy man's process.

The Obvious Alternative is to cut up the film and develop each exposure separately. This brings us to the starting-point with cut or flat films, except for the difference that roll films when cut up are troublesomely curly. To meet this we may employ some of the various forms of film-holders, or, what is by some regarded as preferable, viz., give a good long preliminary soaking in cold water to the cut-up pieces.

When cutting up films the beginner Caution. is advised to use a pair of scissors with long narrow blades. If they are long enough to reach right across the width of the roll, so much the better. Frequently one or both the end pieces of the film are somewhat longer than those in the middle. Care must be taken to cut the film exactly opposite the markings on the black paper. It is a good plan when cutting up a spool to have at hand a good deep card-box, or a chip-box such as the hatter uses for sending out tall silk hats. The film and black paper are cut through from side to side at one operation, the paper and film together falling into the box. It is then easy to sort out the papers. For soaking use a large deep vessel, e.g., an earthenware foot-bath, large basin or dish. With one hand take a film from the box and with the other hand put it in the water and turn it over and over two or three times, removing any clinging Do not let the film rest against the bottom or sides of the vessel for at least a minute after immersion, and then only let the non-film side touch the vessel. Do not let two films be in contact. If the vessel be deep enough and the films

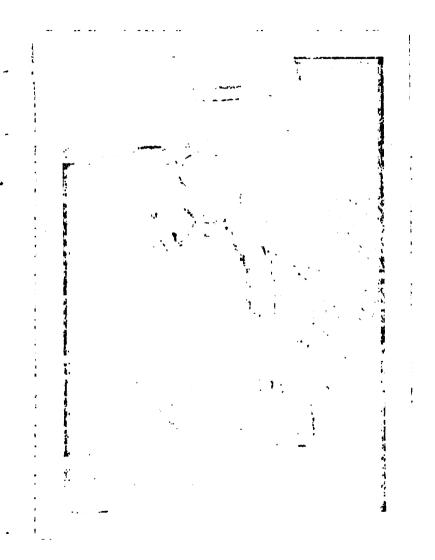




Fig. 20. F C L. S. W. TOWER.



Fig. 19. ST. PAUL'S, WEST FRONT.

F. C. L.

put in carefully, they may be made to stand on edge all the way round the vessel if it has upright sides. For small-size films up to quarter-plate we

may use a row of glass or earthen jam jars.

There is only need for two matters Development. of caution to be given to the worker who hitherto has confined his attention to glass plates. In some cases ammonia, caustic alkali, or acetone may not be used. Therefore, if the maker gives no word of caution on this point, it will be well to make one or two trials with these reagents upon test exposures before running any risk with exposures which may be difficult or impossible to repeat in case of harm done by the developer. Again, the glass-plate worker who has been accustomed to employ perhaps 11 oz. of solution for a quarter-plate had better begin with at least 4 oss. and a deep dish. A few trials will probably show him that, in order to keep all the film well covered with solution, he will want it to a depth of an inch or more.

To Develop a Curly Film.

Lay the previously soaked film face up in the dish. Pour on the developer to a depth of, say, 1½ inches, give a swirl round, then turn the film face down so that it rests on its edges, forming an arch or bridge. The finger or a glass rod touching the back will prevent this arch rising out of the fluid, if only the dish and quantity of developer be

reasonably adjusted to the case.

Avoid holding a warm finger against the film back or front, as the locally applied heat will probably accelerate development and cause a patch. Some workers prefer to employ slow development with single films. Half a dozen common twopenny tumblers with straight upstanding edges are used. In each tumbler is put a cut film (uncoated side against the glass), and is herein given a half-hour's soaking. The water is then poured away and a dilute developer poured in to a depth to well cover the film standing on the edge. One well-known worker so adjusts the strength of his developer that each film takes half an hour to develop. Each film is started five minutes after the last, so that in an hour twelve exposures are developed.

These five minutes' intervals give time to transfer from the developer and rinse under the tap for a couple of minutes the developed sections, and transfer them to the fixing bath, while others are slowly developing. An occasional swirl round during development is all that is needed. A shade is fixed over the dark-room lamp, so that the films developing are almost in darkness.

Scratching. It must not be forgotten that we are dealing with a gelatine surface, which is easily scratched or torn. Therefore some care must be taken to avoid the sharp corner of one film from scratching or injuring the gelatine coating of another film. This caution, of course, applies to all the operators of developing, fixing, etc.

in a similar way may be started by one film edge rubbing another film edge,—or may be induced by handling the films with hot, warm fingers. It may also be brought about by transferring a film from a solution at one temperature, e.g., tepid developer, to another at a markedly different temperature, e.g., recently mixed, and icy cold fixing bath, etc. A developer too strong in alkali may also induce frilling.

Fixing. Here, again, the same precautions must be taken to ensure the whole of the film being well covered by the fixing bath. The film must be moved about, and turned over frequently. Care must be taken to prevent them from overlapping each other.

Washing, of course, must be thorough. It is better to wash in half a dozen changes of five minutes' duration in each bath, than to soak in slowly changing water for two or three hours.

The tumbler or jampot method may be applied to fixing and washing, just as in developing. But a more convenient method for washing is to use a couple of wooden buckets. The strips of film are cut up singly or into lengths not quite so long as the bucket is deep. Two strips are taken and put backto-back, a pin is passed through the corner of a pair of strips and then into the edge of a small block of wood. Another pair is similarly attached to the

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opposite end of the block of wood. Similarly the two sides. We have then eight strips hanging more or less vertically downwards and upheld in the water, by the floating block. While the films are thus soaking in one bucket, the other one is being filled with clean water. The wood block is then carefully lifted out of one bucket, and equally carefully lowered into the clean water,—the second bucket. The first is now emptied, and clean water put in, ready to receive the washing films at the end of five minutes. Between each transfer it is well to let the film strips drip and drain for a minute or so.

Drying. The tyro must not attempt to use alcohol or methylated spirit to hasten drying, in the way often done with glass plates, or he will probably find that the celluloid basis of his film has been more or less dissolved by the spirit, and the film irretrievably ruined.

Cut Flat Films may be dried by pinning one corner to the edge of a wooden shelf. Cut roll films are best dried by pinning all four corners down to a piece of thin board over which has been previously laid a sheet of blotting paper. The boards are then set up on edge in a dust-free, airy place. The films should be placed on the board so that one corner is lower than the others. If an edge of a film be horizontal when set up to dry the water will collect along this edge, dry very slowly, and may leave a drying mark. If a film be wanted quickly it may be surface-dried by momentarily pressing it between two sheets of fluffless blotting paper and then dried by fanning.

To Prevent
Curling.

It has been frequently suggested that the last washing water should contain one part glycerine in twenty parts water. This plan is open to the objection that a trace of glycerine is left in the gelatine film, and as glycerine is a hygroscopic or moisture-attracting substance the film is never really dry. This may induce stains and spots with silver paper or platinotype, may bring about silver spots in the negative itself, and will tend to encourage the growth of fungi and micro-organisms generally.

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To Distinguish the Coated Side. If the film is held in such a position as to catch the reflection or glint of the dark-room light, it will be noticed that the coated side looks dull and gives a burr'd light, while the non-coated side is shiny and gives a much brighter, sharper reflection. Moreover with flat cut films there is nearly always a slight tendency to curl inwards on the coated side, as this side is slightly concave. This is more noticeable at the edges.

DEVELOPERS FOR FILMS.

- 1. A. Water, 20 ozs.; soda sulphite, 2 ozs.; pyro., 3 drms.
 - B. Water, 20 ozs.; soda carbonate, 1 oz.; potass. carbonate, 3 drms.; soda sulphite, 1 oz. For use take equal parts of A and B.
- Water, 20 ozs.; soda sulphite, 1 oz.; potass. bromide, 3 grs.; soda hydrate (caustic), 25 grs.; pyrocatechin, 45 grs.
- 3. Water, 20 czs. : soda sulphite, 1 cz. ; soda carbonate, 1 cz. ; kachin, 80 grs.

The above are my three favourite formulæ for film development. It is convenient to note that all three have a factor of 10. The reader is referred to No. 6 of the *Practical Photographer* for complete and practical instructions as to factorial development, which certainly is very convenient for film manipulation.

Developing Roll Films.

By C. J. DAVIES.

ROCURE a round baking tin five inches deep by seven in diameter, and coat the inside with black varnish.

Developer.—Fill this tank with a very dilute developer to a depth slightly exceeding the breadth of the film. A suitable formula is: Water, 10 oz.; metol, 2 grs.;

soda carbonate, 13 grs.; soda sulphite, 22 grs.; potassium bromide, ‡-gr.

Remove the film from the backing paper, and after dividing it at the perforations into two lengths of six exposures each, place one of these lengths in water until flaceid, and then transfer to the

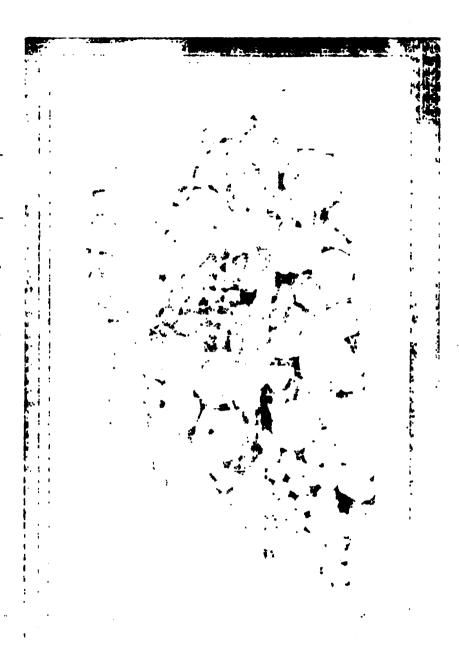




Fig. 22. F. C. L. F. C. L.



Fig. 23. F. C. L. IN THE MARKET.

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developer, so that the film rests on its edge in a loosely-rolled condition. The outer end of the film should be attached to the side of the tank by a a wooden clip, and a round glass bottle suitably weighted may now be revolved along the face of the film until it has reached the centre of the helix, when a reverse motion is given to it.

If the film is removed, cut up, and placed in water as soon as the divisions between the various negatives are visible, the tank should be capable of dealing with three rolls of one dozen exposures

each before exhaustion.

Development is, of course, completed in a flat dish with any developer of normal strength. This method avoids streaks of extra density and minute strise, which are so often present in films that have been drawn through the developer.

By squeezing a strip of glazier's lead on to one edge of a roll film, it may be coiled into a regular helix, and will then develop evenly without further attention. The developer must in this case be well

diluted and one not liable to staining.

Miscellaneous Hand-Camera Hints.

By F. C. LAMBERT.



TALKING, in the hand - camera man's vocabulary, means just neither more nor less than avoiding observation of himself by his victims. There can be no question about it being of the first importance to do this if natural, realistic, and unconscious expressions, poses and groupings

are to be obtained.

First of all the worker must keep cool and quiet. Must not be fussy about forcing his way among a crowd to get to the best place or front row. He can get there just as soon by a little quiet patience. Next he must not be seen to be "fiddling about" with his camera, changing the plate, trying the shutter, altering the stop. When these things are necessary, the worker should do them without looking at his camera, or should slip aside under cover of a doorway or side street, behind a boat or rock or tree.

It is most essential that he knows his instrument so well that he can manipulate any part or movement without looking at the camera, and indeed sometimes this must be done while the camera is

held behind one's back, or under one's coat.

A good stalker must learn to make up his mind quickly, and as quickly carry out a pre-arranged For example, you espy a group of intention. children playing in the street. Do not stop and look at them and then see how they come in the finder, or they will surely espy you, cease playing, and begin to take the keenest interest in the "photography man," and ask him to "take my picture, mister." Better to walk slowly on—and pass the group, making up one's mind the point of view where the shot will be taken, size of stop, speed of shutter, etc. Directly you have passed your group, your arrangements should be made, then turn round, bring the camera into position, and take your picture before they have had time to know they are being operated upon. passed them they are little likely to take an interest in a back view of yourself. A second shot may be taken by reversing the direction of your walk, passing them again and making the exposure from the side which first caught your attention.

At another time you may be loitering about in, say, a market place, quay side, or street corner, and have observed a good bit of composition which only needs a figure at a certain point to give balance, contrast, relief, emphasis, interest, etc. In that case you may make all your arrangements and just stroll about looking at the boats, the clouds, your watch, read a newspaper, take a feigned interest in a group that you are not going to include in your position, but all the time keeping half an eye on the place where the desired figure is to occupy. It may happen that everyone around you has discovered you have a camera and are waiting for an opportunity. This will perhaps interest them so much that what you look at they at once fix attention on. In that case a little guile may come in useful. Having selected your real view point and subject, then pretend your interest is in a direction at right angles, or perhaps just

MISCELLANEOUS HAND-CAMERA HINTS.

opposite to the real direction of your subject. With that peculiar instinct which makes people desire to be included in a picture (which it is a million to one that they will never see), you will thus be able to draw away undesirables from your selected scene. (This dodge is especially useful with children and women folk.) Then, when they are as they think nicely placed in your picture, you can quickly turn your camera round, and get your subject before they have realised that they are not the chief object of your pictorial desires.

Sometimes one can dodge a group of figures by turning one's back upon them, and hold the reversed camera under one's arm, and rely entirely on the finder. A companion is often useful in stalking, as he can strolf up and talk to one group in which you can pretend to take an interest, until a happy moment arrives when you make the exposure on some other group that you have quietly been watching all the time. The beginner will wisely rely a good deal on the finder to tell him how much subject is included, and also when it is correctly included on the plate. But with observation and practice one may learn to know how much subject is included, and also learn to know by feel, not sight, when the camera is being correctly held so as to include this amount of view.

Successful stalking means patience and practice. It means good humour to take and give inoffensive chaff. It means tact in knowing what to say to one's subject so as to disarm suspicion. It means a measure of self-control not to get excited or "flustered" because the right figure will not come along, or because the wrong folk will persist in

hanging about where they are not wanted.

Judging Distances.—This is an art which may be acquired by practice. When out walking select an object—pause and guess how many yards it is from you—then pace it and verify your guess. But before doing this measure out a 10-yard distance and test your paces. Few people step quite the full yard. Probably you will find then that a true 10 yards length takes 11 of your full strides. Then bear in mind that your paces are about 10 per cent. short of true distance. Practise guessing distances

under various conditions, e.g., along and across the street. Distances along a narrow street look longer than they do along a wide one. Similarly a 10-yard length along a grass field or lawn or other even ground does not look so far as the same distance cut up by shrubs, beds, etc., in a garden. Distances over water look shorter than the same distances over land.

It is well to fix upon some standard distance (corresponding to your lens and usual stop) within which you must not trespass unless you re-adjust your stop and focussing scale. For instance, say that you chiefly devote yourself to landscape work with a $5\frac{1}{4}$ -inch focus lens and stop f/11. If your focussing scale be set at 23 feet then all objects from $11\frac{1}{4}$ feet to infinity will be sufficiently sharp for practical purposes. Thus 12 feet is your trespass distance for this stop at this focus. If you are using f/8 with the same lens then your focussing scale should be set at 32 feet, and half this distance, viz., 16 feet, is your trespass distance within which you must not go without re-adjusting the scale or stop, or perhaps both.

The beginner is advised to set his scale to 20 feet, and use f/8 as his standard. This gives him a range of focus for objects not nearer than 11 feet, and not beyond 87 feet with lens of 5-in. focus.

Another very useful aid in learning to judge distances is to get an adult friend of average height, to stand at 4 yards, 6 yards, 8 yards, etc., and to note how tall—how large he appears on the finder at those distances. This bit of knowledge not only enables one to verify one's guesses at distance, but has the additional help of keeping the sizes of figures in suitable proportions to the picture space.

Verifying the Limits of the Finder.—It is important to see that the amount of view shown on the finder fairly closely corresponds with that taken on the plate. To compare these two, first remove all sheaths or plate holders, and substitute a piece of fine ground glass, taking care that it occupies the position of the film or plate when an exposure is made. Now set the camera on a table opposite an open window showing some distant

objects—arrange the camera so that a distant object, e.g., a tall chimney, just falls on the edge of the ground grass when the focussing scale is set for distance. Then, without moving the camera, see if this same object corresponds with the margin of the finder. Similarly the other side of the view. Then turn the camera on its side and verify the other two sides of the plate. If the finder shows too much view, a little black varnish must be applied with a fine brush to cover up the excess of view. Next as to near objects. To get these in focus we must rack out the lens, i.e., increase the distance between the lens and ground glass. Set the focussing scale for the nearest object so marked. Now transfer the scene of operations to a room, and use the flame of a lighted candle as your object. We now arrange for the image of the flame to fall on the margins of the ground glass. Increasing the distance between lens and ground glass has reduced the view angle. Consequently when the image of the flame is sharply defined on the ground glass it will fall within the margin of the finder. Again using the fine pointed brush and black varnish, we indicate by one or two tiny dots the reduced picture angle for nearest objects on the finder. All four sides are corrected in the same way. It will not be necessary to mark the intermediate positions of the lens.

Holding the Camera.—The position of the camera relative to the objects, e.g., ground, etc., may make just all the difference between a good and a bad composition. That, however, is a topic more properly belonging to the subject of selection, arrangement and composition, rather than a booklet on Hand-camera work, and is accordingly

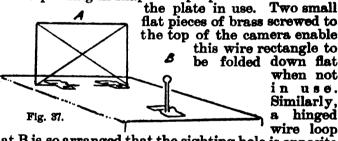
reserved for that subject.

Briefly a low-down view point compresses the ground planes, and gives more importance to foreground objects. Thus, with a low view - point, reeds, long grass, or shrubs in the foreground may be given suitable importance.

A high-up view-point tends to spread out the foreground, and gives a looking-down-upon kind of effect which is seldom quite satisfactory from the

pictorial aspect.

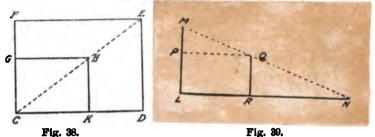
Hence we find painters sit rather than stand to their work. But to every rule an exception, and at times the hand-camera man has to take up exceptional positions. For example, in a crowd it may be necessary to hold the camera well up over one's head, turning the camera upside down so that the finder is on the lower side. Again, one may have to look over a hedge or wall, or some other object or obstruction, when the camera may be held level with the face and a sighting shot taken by looking along the edge of the camera itself if of box form. Or it may be held just under the chin with its lower edge resting on the chest. In this case a wire frame finder is desirable. This may easily be fitted to a box form of camera by any one who can use a pair of pliers. This is diagrammatically shown in Fig. 37, where A is a rectangular piece of wire corresponding in shape and proportions to those of



at B is so arranged that the sighting hole is opposite the centre of the rectangle. This is marked by two fine black threads joining opposite corners and crossing each other. The eye placed opposite the sighting hole of B is directed towards the crossing of the threads, when the wire frame outlines the view.

To determine the proper size of A proceed as follows: Suppose the camera is for 1-plate (say 4×3) with a 5-inch lens, and it is desired to use a wire frame of 3 inches for longer side. Draw CDEF (Fig. 38) the size of the plate in use. Join CE, mark off CK equal to the long side of the wire frame desired. Draw KH parallel to DE, and HG parallel to EF. Then GHKC is the actual size of wire frame required. Next, to determine how far this frame must be from the sighting hole to give the proper viewangle. DrawLN(Fig. 39) the focal length

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of the lens. Draw LM equal to the short side of the plate, i.e., DE, and perpendicular to LN. Join MN. Mark off LP equal to HK. Draw PQ parallel to LN, and QR parallel to ML. Then RN is the distance between the sighting hole A and the frame B.

The next position to hold the camera is at the length of one's arms when they rest against the body, when the finder can then be conveniently seen. Some workers prefer to pass the right arm round the camera, and have the left hand underneath the camera. The exposing trigger may then be touched by either hand as may be most convenient. If a lower position is desired then bend the knees, resting the body on the front half of the feet and rest the camera on one knee. A still lower position—sometimes useful when working on the edge of a quay side—may be got by holding the camera between the knees—using the two hands, one on each side of the camera.

Some cameras are provided with buttons or studs which engage in holes in a leather strap which passes over the neck of the worker, and suspends the camera at a convenient height for operations.

Opinions are practically unanimous in saying that the moment to fire off the shutter is either at the beginning or end of a respiration, i.e., when the lungs or inflated or deflated, "full or empty." Not a few failures due to moving the camera during exposure are the result of suddenly pushing the camera when the exposing button is being released.

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What is wanted is not a sudden push, but a gentle and quick squeeze. Thus, if the first finger is used for the trigger, then the second finger should be below the camera and the thumb at the side, and these two should grasp the camera firmly so that the first finger is quite free to move while the other two are helping to hold the camera steady. It is a great help to lean the body against any solid object, such as a lamp post, railing, tree, gate, wall, rock, boat, etc., at the moment of exposure. To acquire a steady hand the beginner should practise releasing the shutter, trying to see how gently, not how quickly, he can do it. The beginner will probably not be able to hold the camera quite still for an exposure longer than $\frac{1}{16}$ second. But with practice it can be held quite still for 1 second when the conditions are favourable.

On a windy day it is desirable to have one's coat tightly buttoned up, or the wind may easily get enough grip to give a movement to the body. A flapping overcoat or cape is a great nuisance in windy weather on this account.

Some workers stoutly affirm that it is easier to hold the camera still by holding it free of, i.e., not touching any part of the body except the hands. Their method is usually to firmly plant the feet same 12 or 15 inches apart, and hold the camera with one hand at each side of it with the arms stiffly held a few inches away from the body.

In a rough and ready sort of way one may say that the further we are from our subject the higher the camera may be held. Thus, for objects, figures, groups, 10 or 15 feet away, the camera should be about level with one's waist—for 15 to 30 feet chest high, and for distant objects chin height will generally be acceptable. This is, however, only a very vague generalization.

Plates Sticking in Magazine Changers. — This trouble is generally due to carelessness in charging the camera. It is important to see that each plate is truly placed in its sheath, and not projecting at either side and allowing sharp edges or corners to

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Fig. 26. OUT SHOPPING. F. C. L.



THE THREE GRACES.

F. C. L.

catch or jamb. Again, the sheaths may be put in the camera wrong way round or upside down. With most cameras of this kind there is only one right way of loading, and every care should be taken to see that this is the way it is done.

Depth of Focus.—It is of first importance that the Hand-Camera worker should have clear ideas on this subject. We therefore invite his very careful attention to the following résumé of the matter. First let the reader clear his mind of the common notion that depth of focus is a special property of certain lenses. This is a misleading way of regarding the subject and should be dismissed from the mind.

It is desirable that the reader will not be content with merely reading the following notes, but that he should verify the statements by a few "personally-conducted" experiments and observations. These may be made in any room, in the evening. We only need three lighted candles, which may very conveniently be fixed in the necks of three empty wine or other bottles of one uniform height. We also need a lens and bit of ground glass. We can conveniently use a hand camera with the sheaths removed and a piece of fine ground glass put in position of the front plate.

First put one of your lighted candles in the middle of the room, at A. Now focus its image as sharply as possible on the focussing screen of the camera, C, using a large stop, say f/8. Now get a friend to place the second candle, N, a little nearer to the camera than, and just so far in front of A, that its flame is sufficiently sharply defined for a well-shaped image. Similarly the third candle, F, is put beyond A, and at such a distance that it is in as sharp focus as N. Of course, N and F will not be quite as sharp as A.

Next we change our find we can shift F a little bring N a little nearer to u all in nearly and practical C (f/II) N Thus a smaller stop has of focal field. Again chanwe find a still greater and C (f/I6) N	ly equally good definition. A. F
Hence we may say that the same, the smaller the depth of focal field, i.e., g N and F.	ne stop the greater the
Our next observation is away from A than is N always greater than A noticeable with a small that while A N is only a many feet. (To confirm few observations out objects may be included). So far we have retain position and observed the Now let us begin again about the middle of the results.	N. Again, this is more han with a large stop, so few inches, A F may be this one should make a f doors, where distant ed C and A in the same effect of a change of stop, in with f/8, and with A
If now we bring A neare to move both N and F near C (f/8) N . A . F	or to C, we shall also have arer to A, thus:
	move A further away we inst the wall of the room y from A, thus:
Hence we see that the depon two things: First, on use, and secondly, on the day, or object in sharpest for	o see that by moving A we shall arrive at such s at an infinite distance, r away from us than N is
burnosonord branching accurate	

MISCELLANEOUS HAND-CAMERA HINTS.

We can now understand the principle of the "fixed focus camera." Thus matters are arranged so that the lens is so far from the ground glass (or position of plate or film) that the far point, F, is at infinity and the near point, N, is at a known or easily calculated distance. We can then say that with such a camera, all objects beyond — feet are in focus. If the worker does not include objects nearer than this distance limit, he will not require any focussing apparatus.

So far we have tacitly assumed that one and the same lens was under consideration. If, however, we change this for a lens of longer or shorter equivalent focus, then while the foregoing general principles and observations will still apply, yet the actual distances between the camera and N. A. and F will be different. One point more must be noted. We have said the objects, N, A, and F will be equally sharply defined for practical purposes. This may be so for contact printing, yet on enlarging we may observe a difference between the sharpness of A and N or F. As a matter of fact, if the point A is in sharpest possible focus, then N and F must be less sharply defined. Experience, however, shows us that if the slight blur, or a small object, a line, or point, does not exceed 100 inch, the normal eye will not notice this. It is, therefore, usual and convenient to base calculations on the assumption that the disc of confusion or width of blur shall not exceed $\frac{1}{100}$ inch.

It should be carefully observed, however, that the table below gives approximately the focus point A. But to take full advantage of the foregoing we should observe that when the far point is at infinity, the near point is half-way between the lens and the focus point. For example, suppose we are using a 6-inch lens with f 8. If we adjust the focusing scale for 38 feet as our focus point, then we may have objects as near as 19 feet, and these will be as sharply defined as objects at a great distance. This matter is usually ignored in tables showing focal field, but it is one of very considerable practical importance.

A Table showing the distance (in feet) beyond which objects are (practically) in focus, i.e., assuming the disc of confusion does not exceed the inch:—

	Equivalent Focus of Lens (in inches).							
Stop.	4	41,	5	51	6	7	8	
f/4	33	42	52	63	75	102	133	
<i>f</i> /5	27	34	42	5 0	60	81	107	
f/0·5	24	30	32	46	55	74	96	
f/8	17	21	26	31	38	51	67	
f/11	12	15	19	23	27	37	48	
<i>f</i> /16	8	10	13	16	19	25	34	

Example.—When using a 5-inch lens our nearest object is about 25 feet distant, required to know what stop to use? Under 5-inch lens and opposite f/8 we find 26 feet. Thus if we adjust our focussing scale for 25 feet and use f/8, then all our picture will be in sharp focus.

The hand - camera worker usually is only interested in one lens, and so can easily commit to memory the focus and near point for his several

stops, when the far point is at infinity.

But it often happens that our subject does not include any very distant object, indeed it may all lie within a range of a few feet. Clearly, the above table does not apply. Nevertheless, if the reader has grasped the foregoing notes as to focal field, near and far points and so on, he will properly conclude that a table of near and far points would be of use when he is anxious to know the largest stop available for such distances. For example, he may be dealing with a group of boats in the harbour, the nearest one is 15 feet and the furthermost 50 feet. They are in gentle motion owing to the incoming tide. The question is—which stop to use and where to set the focussing scale so that the shortest possible exposure may be given? To meet such cases we have worked out a table for a lens of 5-inch equivalent focus. Fractions have been approximated to the nearest foot.

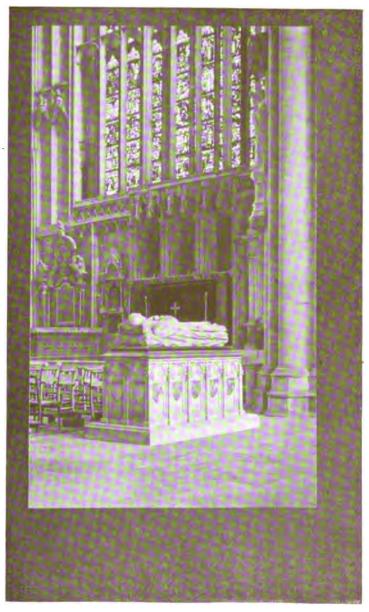


Fig. 28.
In York Minster.

W. G. Hill.



Fig. 29. WINTER MIST. F. C. L.



Fig. 30.

A SPLASHY CORNER.

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MISCELLANEOUS HAND-CAMERA HINTS.

Table showing the practical depth (in feet) of focal field with a lens of 5-in. equivalent focus.

f/6·5	<i>f</i> /8	.f/11	<i>f</i> /16	f/22	
		4-6-8	4-6-11	3-5-11	
6-8-11	6-8-11	6-8-13	5 8 21	4-7-32	
8-10-14	7—10—16	7—10—21	6—10—43	5—9—Inf.	
10-15-28	9—15—35	8-15-71	713Inf.		
122053	11-20-87	10— 19 —Inf.			
14-25-114	18 – 26 –Inf.				
16-32-Inf.					
1	1	I .			

Note.—The figures in heavy type are the focus points, and those to right and left the far and near points. Thus under f/8, if the focussing scale be set at 15 feet, objects between 9 and 85 feet distance from camera will be sufficiently sharp.

In the example just quoted our near and far points are 15 and 50 feet. Under stop f/6.5 we find that if we focus on 25 feet our near and far points are 14 and 114 feet. This embraces the distance required.

Ågain, suppose we are dealing with a bit of carved stonework; the nearest point is 6 feet and most distant part 12 feet away. Under f/11 we find a range of 6 to 13 feet when the focus is adjusted

for 8 feet on the scale, and so on.

One more example. We wish to take a distant panorama with objects as near as 10 feet. Under f/11 we find that when the focus is set for 19 feet we have a range from 10 feet (really half 19 feet,

or 91 feet) to infinity. This meets our case.

Just one more example. We are dealing with trees swaying in the wind, and on account of movement we must use a stop not smaller than f/11. The nearest part of our subject is 9 feet and most distant 60 feet away. Looking at the ranges under f/11 we find 8—15—71. This meets our case, so that we can use f/11 with safety if the focussing scale be set at 15 feet.

Pictorial Pointers for Hand-Camera Workers.

By THE EDITOR.

NE need hardly say that the same pictorial principles apply to picture making by a camera held in the hand, or supported by a tripod. But the fact remains that certain faults are more likely to happen in the one case rather than in the other. It is now our chief intention to call

attention to, and in certain cases exemplify, these

more frequent mistakes.

On another page something has been said about the effect produced by a high or a low view point. Let that now be taken for granted and remembered in conjunction with the notes here below set forth.

Focal Length of Lens.—In general the lens of a hand camera is of somewhat short focus for good pictorial effects. Thus on a 4 × 3 picture the focal length generally used is 5 or perhaps 5½ inches. Now it is not always fully recognised by the beginner that a short focus lens includes a comparatively wide angle of view, consequently diminishes the size and scale of the object, and at the same time makes near objects appear to be relatively too large when compared with similar distant objects. This gives an unnatural or exaggerated perspective effect.

In Fig. 14 we have an old white horse and a young donkey. This latter is much nearer to us than is the former. But in the illustration the two animals appear to be more or less the same size. The fault is due to the donkey being too near the lens. Street scenes with figures too near the camera are familiar examples of the same effect.

In Fig. 15 the same effect or defect is shown under somewhat different conditions. In this case we are concerned with the relative apparent size of the near houses to our right and left as compared with the more distant, but really larger, house at the bottom of the street. The horse and carriage which are only a few yards distant seem

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quite a long way off, and insignificantly small when compared with the cottage window to our right. In the same way the width of this little village street is here made to appear greater than it is.

Down-hill Effect.—Note that the down-hill effect is here obtained by keeping the camera quite level, and bringing into prominence the descending vanishing lines of the cottages to our right and left.

Tilting the Camera.—The next very common fault is that of tilting the camera when dealing with architectural subjects. The effects of this may be seen in Figs. 19 & 20. In the case of 19, the upright lamp post seems tilted over towards our left, while most of the vertical columns of the building are tilted to the right. Thus—vertical parallel lines which in nature are thus—||, are by tilting the camera upwards made to converge thus—A.

A still more marked example is shown in Fig. 20, where the camera was pointed upwards at a very considerable angle. If this picture be held vertically, and opposite the level of the eyes, it conveys the impression that the tower is falling backwards. But it may serve to illustrate the effect of the relative position of head and picture. Let the reader lean back in his chair and throw the head well back as though looking up towards the top of a near high building. Now raise the picture well up above the head, but holding it in the vertical plain. In a certain position it will assume a strikingly realistic effect, and appear no longer tilted.

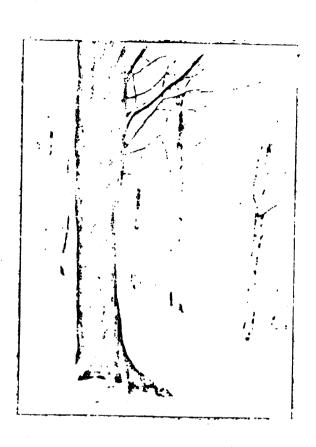
Similar effects may be observed and produced by looking down upon buildings or street scenes from an elevated view point. These pictures can only appear at all natural if viewed by looking down upon them. These two examples, 19 & 20, may serve to show the importance of holding the camera level when dealing with architectural subjects.

Distortion.—However, should it be desirable to tilt the camera for special reasons, the falling backwards effect can be removed by making a transparency and a new negative in the manner

is not very pictorial. Had the operator waited till described in No. 3 of *The Practical Photographer* on page 15, sub Distortion.

Figure Studies.—We now pass to one or two of the more common faults in connection with the treatment of figures. In Fig. 22, we first notice that the buildings are all leaning towards one side. This tells us that though the camera was held level-yet it was not held horizontal, ie., one edge was lower than the other. Fortunately this defect of the print can be got over by careful trimming, but the defect is here left apparent to point the moral and serve as a caution. Now with regard to the figures, we find them showing us various pictorial faults. First, they are too large for the picture space. Second, they come too near the centre and are too similar in pose and too symmetrically placed. Third, there is too much space in the picture below their feet, and not enough above their heads, i.e., they are too high up on the picture plane. Of course, most of the above faults can be more or less overcome by enlarging and trimming, but the negative is printed just as it is to convey the above hints. In Fig. 23 we have another set of faults, while some of those in Fig. 22 are avoided. The figures are relatively better placed, but in this case some are staring at the camera. The background is too black and white, and not at all suitable. The walking figure to our right is a disturbing element, though not in quite so grotesque a position as one sometimes sees portrayed in hand-camera work. The group is too central, and the plate should have been the other way round, i.e., for a vertical picture.

Street Scenes.—We now pass to a couple of street scenes, Figs. 26 & 27. In the former, two ladies "Out shopping," are caught as they pass beneath a shady tree. This example shows how one may carefully measure one's distance from a certain object or position, make all adjustments, and then wait until some happy grouping presents itself. In this instance, the figures well suggest motion, but for the chequered light and shade on



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them. Had they taken just one step further forward, a far better result would have been secured. The hand-camera man must not be in too much hurry on the one hand, and on the other hand must not miss an opportunity by being too slow and let it slip by. From Fig. 27 we may take the warning not to cut our picture in half by a hard line running from side to side. Again, there is rather

too much foreground space.

Moving Objects.—Figs. 29 & 30 illustrate objects in motion. From 29 it will easily be inferred that the negative was taken one foggy winter's morning when the streets were slushy with snow, and the horses' breath made steam clouds about their noses. Except the near part of the snow, no portion of this picture is in sharp focus, yet quite sufficiently so for a suggestion of movement. It is a great mistake to suppose that objects in motion must be snapped at such a speed that they seem "dead sharp all over." Indeed, if they appear dead sharp, then the suggestion of motion is really destroyed, though we may infer movement from the positions.

In Fig. 30 we have another example of suggested motion in a wave splashing up against a stonework structure. Little or no part of this splash is quite sharp, i.e., free from blur; but the slight displacement better conveys to the eye the general impression of such a scene than a picture wherein all the movement was eliminated, and the water appearing more like an immovable block of ice,

rather than moving splashing water.

So far for the few illustrations that we have been able to include. These however are only a tithe of what one would desire to give in order to

show the common faults.

Size of Figures.—The smaller the finder the more difficult it is to quickly realize the precise proportions of the various parts of our picture. Hence, figures in the near foreground, which seem quite tiny in the finder, often come out too large in the print. Similarly small but undesirable objects, i.e., patches of black or white, ugly bits of line or form, and unpicturesque objects generally, if small or distant in nature, are so very much smaller on the finder that one is apt to overlook them.

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Unsuitable Subjects.—It is not wise to attempt subjects showing strong light and shade contrasts unless the light is good, and an ample exposure can be given. Indeed with such subjects it would be better to err slightly on the side of over-exposure, so as to somewhat subdue strong chiaroscuro: for under-exposure in such cases is practically fatal so far as pictorial rendering is concerned. By strong contrast subjects one means—a snow-clad landscape with near dark tree trunks, rocks, etc.; narrow streets one side in strong sunlight, the other in sharply defined shadows; dark boats and black or red sails in the near part of the scene with brightly lighted land or waterscape beyond: brightly lighted landscape or architecture as seen through an open door, archway, etc; figures in black or red and white costumes, and so on. In considering light and shade, one must not forget that reds, dark greens, browns, etc., are equivalent to blacks in such cases.

Unnatural Effects Due to Too Rapid Exposure.— These are by no means uncommon in the case of rapidly-moving objects, e.g., people running, horses jumping, etc. The human eye, when viewing such subjects, does not see so many separate motions or parts of a motion, but takes in a combination of many positions, and so acquires the impression of movement. But a very rapid shutter may isolate one of a series of positions which the eye has never seen as a separate position. Hence we see galloping horses sometimes presented with the legs stretched out fore and aft in a way only familiar to us in the wooden rocking horse of the nursery or merry-goround. Again, take one very simple and common case, e.g., that of a man seen side-face walking across the line of sight. We may catch him at the moment when one leg is passing behind the other. Such a position, of course, exists as one of many positions in those making up the movement. But this one position gives a doubly false impression. It shows us a one-legged man and a man standing, not moving. Again, a man walking may be caught with the forward foot at its highest point. This again conveys the impression of a man trying to

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regain balance after having kicked an invisible football, and suggests motion backwards rather than forwards.

Moving Objects.—In general with moving objects there is a period or phrase in the series of movements which is especially characteristic and significant of the motion. It is this which obviously should be striven for. Let us take a homely illustration, viz., that of a swinging pendulum. If our view shows the pendulum sharply defined at the lowest point of the swing, we should rightly say that this suggests the position of rest-not motion-for we know that this is its position of greatest velocity when swinging. Again, if we sharply define the extreme end of the swing, we should from knowledge say at this point also we know that the oscillating pendulum is at its point of rest when changing from the upward to the downward swing. between the point of rest and of greatest velocity we should infer that it was moving, provided always that other conditions were favourable to this position. Similarly we should avoid showing a jumping horse or man at the moment of springing from or arriving upon the ground. And so on with the batsman, bowler, oarsman, runner, tennis player. Pictorially, we should be more likely to be interested in the trees swaying in the wind, the gentle roll of the flowing tide, the ploughman at the turn of the furrow, the haymaker loading the cart, the harvester swinging his scythe, and so on.

Fortunately for the picture-maker, the characteristic phase is usually not that of greatest movement, but either just before or just after—the one showing a gathering effort, the other a recovery after effort.

Pictorial v. Scientific Truth.—Reverting to our swinging pendulum example, this may be caught at the moment of greatest velocity, i.e., with bob at the lowest point, and so sharply defined as to give the same photographic effect as a pendulum taken at rest. Scientifically, such a presentation is true, in so far as it shows something which existed in fact. Pictorially, it is untrue, in as much as

it does not correspond to the visual impression normally and generally apprehended. This simple principle is of general application, and should not be lost sight of either by the scientific or pictorial worker, who so often misunderstand each other on these matters. The hand-camera would-be-picture maker must not forget that a sharply-defined rapidly-moving object does not and cannot convey a pictorially true impression. Artists from early times have recognised this, and have sacrificed definition (or detail as the photographer often confusingly calls it) to a suggestion of movement.

Detail v. Definition.—Detail may be absent or present in the object itself. If present, it may be largely obscured, if not lost, by inadequate contrast of light and shade. Thus, low relief in a carving may be obscured by a soft front light, and emphasized by a strong oblique light. Again, faulty exposure or development may obscure detail. Aerial perspective may modify detail.

Definition is a matter of optics so far as the handcamera man is concerned. The object may be out of focus, or the exposure so long that appreciable blur is the result. Halation may obscure detail.

Blurred Foregrounds sometimes spoil hand-camera pictures. Thus the worker may be "shooting" at some object over the top of a hedge and not observe a leaf in front of the lens which does not show on the finder, either because it is too small, or because it does not come in front of the finder lens. Similar mistakes may arise with railings, rigging, etc. Again, some near object may be so near as to be quite out of focus. (See depth of focus).

Proportion of Figures to Picture Space.—This point calls for great care, as the finder does not always convey a truthful impression. Bear in mind that the finder lens and camera lens are looking at the subject from a slightly different position. Again, a finder that is correct for distant view will not be quite correct as regards limits of subject for a near object. One must therefore be on one's guard not to get figures too large for the picture space, or cut them off across the top of the head or at the ankle.

Evolution of the Kodak.

BY D. J. WINGFIELD.

HE inception of the Kodak idea was the logical sequence of the Bromide Paper idea, of which George Eastman was the originator and first manufacturer. The idea of a flexible, continuous, rollable strip to receive negative impressions in the camera was therefore suggested by Bromide Paper, although the first

idea of such paper was for positive printing only.

The first film was simply a Bromide emulsion for the production of negatives, this emulsion being coated on paper which was rendered semi-transparent or translucent

by the application of oil or varnish.

The production and use of film naturally called for a camera differing in construction from anything then made in which rollable film could be conveniently exposed. This need brought the original No. 1 Kodak, a rectangular oblong box with rotary shutter, and making a circular picture two and one-half inches in diameter. This instrument was very crude as compared with those made to-day, but was nevertheless a first-class camera, in proof of which it may be stated that some of these Kodaks are even now in active use and doing good service. To this instrument was first given the name Kodak. This name is entirely original with the Eastman Kodak Company, but so apt and appropriate was the appellation that the name Kodak is now popularly. although incorrectly, applied to cameras the world over, and undergoes no change or modification in any language. The word Kodak, however, is a trade name, and properly applies to film cameras of Eastman Kodak Company's manufacture only.

Transparent Film. The natural evolution and improvement, with which the Eastman Kodak Company has always more than kept pace, called for a more perfect flexible substitute for glass support for the emulsion, and after numerous experiments the Transparent Film, now so widely and favorably known, was perfected May 5, 1885. After this the growth of the Kodak idea was rapid and continuous.

A notable step in advance was announced when the little legend, "You press the button and we do the rest," first

attracted public attention. Probably no sentence has ever been so widely quoted or generally used as that contained in these words. Like all bright and original things, this form of words has been copied and used in connection with a multitude of different things. All this, however, has only broadened and popularized the Kodak idea, which is now almost inseparable from any part of our daily life.

Notable improvements in the construction of Kodaks were made, other and larger sizes were introduced, and in the year 1895 we find a catalogue of Eastman Kodaks containing a variety of box and folding Kodaks capable of producing negatives varying in size from two and one-half inches, made with the No. 1, to $6\frac{1}{2} \times 8\frac{1}{2}$ negatives, made with the No. 6 Folding. All these negatives were, however, made on rollable strips, containing anywhere from twenty-four to one hundred exposures, which, however, it was necessary to load and unload in the dark room.

Cartridge Film first appeared in 1895. The Pocket Kodak was introduced at this time, and it being the first instrument affording a practicable means of loading and unloading by daylight, the sale was phenomenal. In this connection, it may be stated that the temper and requirements of the public were correctly gauged by Mr. Eastman, who alone foresaw the enormous sale this instrument was destined to have. He ordered a quantity of cameras far in excess of what others interested in the business thought it possible to sell; but that Mr. Eastman was right was proven by the fact that it was even then impossible to keep pace with the demand.

The following season — 1897 — the Folding Pocket Kodak was first introduced, and the rise and popularity of Kodaks of this construction has been little short of the marvelous. Folding Pocket Kodaks are now made in seven sizes, and with regular and special equipments may be had in no less than twenty styles.

Last, but by no means least, is the Kodak Developing Machine, which only carries the Kodak idea one step farther in the steady evolution of its growth, and as the dark room was first discarded in connection with the loading and unloading of cameras, it is now possible to conduct all operations connected with negative making without the use of the old-fashioned dark room. The theory of development by timing has an important bearing on machine development, and this method of working is found to be

not only theoretically and scientifically correct, but also thoroughly practical and productive of results which for uniformity and artistic excellence are worthy of note. In fact, many who had at first scoffed at the idea as impracticable and absurd, have become convinced of its greater convenience and usefulness, and are now most enthusiastic advocates of the Kodak and the Kodak Developing Machine. In other words, those who at first ridiculed a new idea are now its friends and advocates, simply because it is, as the Kodak idea always has been, right.

It may be of interest to draw a comparison between the photography of to-day and that of twenty-five years ago. -At that time photography was practiced but little, and that little only by professionals, who prepared most of their own materials, such as plates, paper, etc., and results were a matter of considerable uncertainty, depending largely upon local conditions and the knowledge and skill of the operator. Photography, as applied to the sciences and arts, was but little practiced. Now there is almost no important work or enterprise undertaken without the aid and employment of photography. In astronomy it is of primary importance, and while these things do not directly concern Kodaks as such, yet the improvements and discoveries made possible by and developed side by side with the Kodak are the direct means of rendering photography as practical and generally useful as it is to-day. Photography is without doubt still in its infancy, and in all human probabilities great discoveries and improvements will be made in the future, but among all the influences working in the direction of improvement, the Kodak idea must be rated as first and foremost, and whatever achievements there may be in the future, there is no question but that the Kodak will be as it has ever been — in the front rank. The Eastman Kodak Company will continue to be as it is now, the moving force in the Photographic world, and our motto ever to be: "A standard uniformity of dependable products."



Notes and News.

HAND CAMERA EXPOSURES. The average hand camera is fitted with a lens of fairly short focus, and in consequence the figures in an ordinary snapshot are comparatively small. This allows of a moderately slow exposure, say, about 1,th or 1,th of a second, being given on moving objects, without the negative showing any signs of the figure having moved. Directly, however. that the focal length of the lens is increased, the figures become relatively larger on the plate, and there is, of course, a far greater risk of movement with such exposures as these. In many cases the movement is not apparent until the negative is enlarged; but when it is, the defect becomes aggravated, and the picture is in all probability spoilt. As this is the first year that telephotographic hand-camera work has been at all popular, this need of increased speed should be remembered, for with a lens shutter it is practically impossible to get a really clean outline under about a fortieth of a second, if the image of the moving figure is over two and a half inches in height. To obviate this difficulty the focal-plane shutter should be employed, remembering always that, with its high efficiency, an exposure of, say, , th of a second is equivalent to Ath on a shutter that is fitted to the lens in the ordinary way. Another thing to be remembered with telephotographic hand-camera work is that to secure a good illumination a considerable depth of focus is sacrificed and a far greater accuracy must be observed when focusing or setting the scale. - Amateur Photographer.

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Among all the hand cameras of American make, the Century Cameras, of Rochester, N.Y., are easily the best. The variety of work done by them is almost unlimited, as they possess, in small compact shape, features hitherto found only in the larger and more bulky professional outfits. All the improvements known to high grade cameras: a brilliant finder with hood, rack and pinion for fine focusing, a reversible back, rapid working shutters, high class lenses, film packs, adapters, adaptable for either plates or films at will, make them the finest hand cameras on the American market to-day. The Practical Photographer is glad to publish this well-merited encomium on the Century Cameras, which is even less than their general excellence warrants.

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THE annual meeting of the Texas State Association will be held at Galveston. The dates set are August 15, 16, 17, and 18. The members of the committee are: A. L. Blanchard, Hillsboro, president; C. E. Hillyer, Belton, vice-president; Bert Williams, Denton, treasurer; and P. H. Naschke, Galveston, secretary.

What is said to be the finest demonstration of photographs in natural colors ever made in St. Louis is given in the German, pavilion at the World's Fair, where a representative of the Royal Polytechnical School of Charlottenburg gives an exhibition daily in the organ loft. The demonstration is the same as that given before Emperor William, of Germany. By the combination of the three primary colors, red, green, and yellow, as many different shades can be secured as desired. By changing the intensity of the lamps projecting the lights and concentrating the colors, the required shades are thrown through the photographic slide on a large white screen. Scenes in Germany and other European countries, as well as groups of flowers, dawn effects, the varying seasons of the year and other objects, are portrayed in a wonderfully realistic manner.

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At the call of the Metropolitan Camera Club of New York representatives of the principal photographic societies of the country met in the large assembly room of the Metropolitan Club, 102-104 West 101st Street, on Tuesday evening, July 5. Plans for the federation were conceived and executed by Mr. Curtis Bell, president of the local club. Representatives were sent by the Boston, Washington, Toronto, Philadelphia, Chicago, New York, and Brooklyn societies, and also the Salon Club of America, which is devoted to pictorial photography, with members from all over the country. It was decided to name the new organization the American Federation of Photographic Societies. After the adoption of a constitution, the following officers were elected: Curtis Bell, New York, president; Walter Zimmerman, Philadelphia, first vice-president; Charles E. Fairman, Washington, second vice-president; F. Dundas Todd, Chicago, third vicepresident; S. C. Bullenkamp, New York, secretary; John H. Thurston, Boston, treasurer; Rudolph Eickemeyer, Jr., New York, salon director; Daniel Baker, Philadelphia, historian; and F. C. Beach, Toronto, chairman salon committee.

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WE are in receipt of a most beautifully illustrated catalogue from the optical firm of C. A. Steinheil Sohne, Munich, Germany, detailing the merits of their well-known lenses. The firm makes a most complete line of lenses of all classes and prices, including teleobjective. The catalogue will be sent on request to any of our readers to their American representatives, Fidelity International Agency, 621 Broadway, New York.

LIKE Tennyson's brook, the Illinois College of Photography goes on forever. During the summer the faculty and the departments are kept in full operation. Both the photographic and photo-engraving courses are well attended, and one can enroll at any time by addressing them at Effingham, Ill.

A. St. St.

AT a recent meeting of the Troy, N. Y., Camera Club, President Callison appointed the house committee as follows: D. W. Master, George F. Olmer, Jr., and W. Burton Myers. The finance committee appointed by the president was: S. B. Johnson, J. J. Kehoe, and R. Rosemon. The entertainment committee appointed consisted of the names of C. B. Conant, J. A. Peffer, and Miss Amelia Waterman. The meeting of the board of directors was held at the office of Dr. Sigel Roush, where the financial condition was found to be in a gratifying condition. The membership now consists of about a hundred active members.

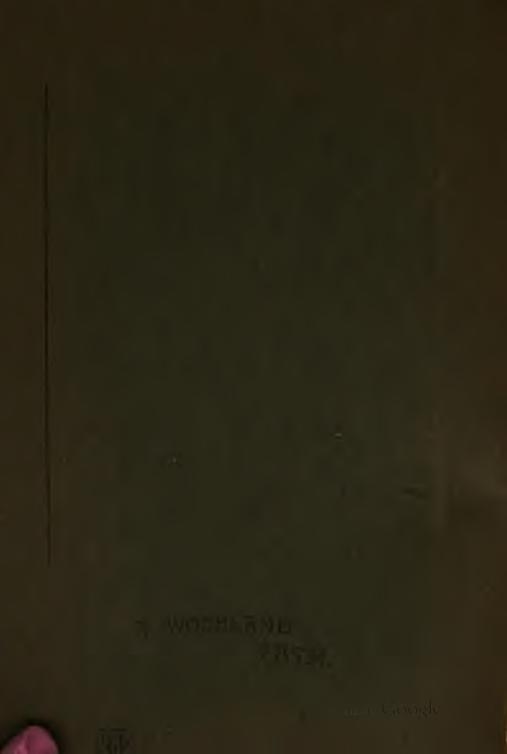
26. 26. 26.

We have recently had the pleasure of making a number of experiments with a new paper manufactured by the American Aristotype Company, of Jamestown, N. Y., and named by them Aristo Self-toning Matt. The paper has all the well-known qualities of keeping and permanency which belong to Aristo Platino, and possesses the same beautiful surface. It is perfectly simple to work, merely requiring fixing after printing, and then giving a beautiful brown print. Amateurs looking for a paper capable of producing carbon effects will like it. Prints made on paper three months old are absolutely indistinguishable from those made on paper fresh from the factory—a fact which will be appreciated by those who can only print at intervals, and hence do not always have absolutely fresh paper.

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ROTOGRAPH, B. Russegger sales agent, has gone out of existence, and the Rotograph Company has taken its place. The new company is incorporated under the laws of New York with a capital of \$300,000. The officers are Arthur Schwarz, president; Ludwig Knackstedt, vice-president, and Frederick Schang, treasurer and general manager. The address of the new company is 771-773 East 164th Street. They intend to manufacture all their products in this country at the above address, and in addition to print their line of art pictures, and a most beautiful line of postal cards, embracing all the prominent cities, resorts, and points of interest throughout the United States. We feel sure that the American public will appreciate this new departure, and bespeak for the new company a vastly increased business.





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SEPTEMBER, 1904.

No. B.

The Pictorial Work of Charles Job.

By THE EDITOR.



R. CHARLES JOB'S position among present-day pictorial photographers is indeed an enviable one. Having selected a certain class of subject and manner of treatment, he has made for himself a position which at once commands the admiration of the realist and impressionist. But while

both claim him as a member of their ranks, yet neither can say that he does not possess the qualities of the other school

Answering for himse'f, he would disclaim any hard-and-fast demarcation and simply ask to be allowed to follow his own impulse both as to choice of subject and manner of presentation. Nor would he make any pretentious claims on his own behalf as to craftsmanship, although his works amply proclaim him to be a worker of quite exceptional technical skill. It is not saying too much to advise every one of our less experienced readers to pay the most careful attention to each of the nine reproductions; for there is not one of them that will not convey most valuable lessons both in artistry and craftsmanship.

Let us not forget that Mr. Job is an "old hand," having started photography in 1870 with a 5 × 4 wet-plate outfit. It is only those of us who have gone

through the wet-plate treadmill of landscape work who know the physical fatigue and constant anxieties attendant upon out-door photography in those early days. Like many other early workers, he presently laid photography aside in favour of another hobby. But after a ten years interval he returned to photography again, now adopting a 74×5 size. Soon after this he joined the London Camera Club, at that time humbly domiciled in Bedford Street, and during the intercourse with the members a further stimulus towards pictorial work was received. Mr. Job generously acknowledges the encouragement and promptings he received by examining the work of his fellow club-members. About that time also he joined a certain well-know postal club, and continued his membership until quite recently. These two clubs are here mentioned as showing that the way to learn something about the true worth of one's own work is to compare it with the work of others, and also to pay thoughtful attention to the honest opinions of other workers. Mr. Job freely admits that the postal club has proved both interesting and helpful to him in his work.

For some little time past he has been using a quarter-plate hand and stand camera, which accompanies him on his frequent little cycle trips around the district of his staside home. He uses a rapid plate, preferably a Lacked colour-sensitive one, with, of course, a suitable light filter. Mr. Job's usual exhibition work is about 15×12 ; but this for the most part is from enlarged negatives from quarter-plate originals. The enlarged negative is on a moderately slow landscape plate made by means of the oil lantern. Those who are familiar with the fine quality of Job's work, seen year by year on the Salon walls, may thus learn to respect a quarter-plate negative, at any rate when it is in the hands of such a skilful worker.

As to art matters, we cannot do better than quote Mr. Job's own words in a friendly letter to the present writer: "If all our coming photographers could have an art education to start with, the resulting work would be better than anything that has been done up to now. To do artistic and

true work one must have some art education. Then one starts fair. Most of us started very badly handicapped for want of this education, and it has taken us years to find out and correct our

errors of composition, values," etc.

We are exceedingly glad to quote this entirely sound and sensible, practical sentiment, because at the present time there is a tendency among a certain few loud-voiced talkers in the photographic ranks to scoff and sneer at art education. They remind us of the fox who, having lost his tail in a trap, tried to persuade all his companion foxes to cut off their tails to follow his fashion. We are told from time to time that all the photographer need do is to "go to nature" only for instruction. zuidance, education. In other words, this is simply laudation of the self-taught man, who, as Sir Joshua said, had a very ignorant person for his teacher.

The open-minded possessor of this book has an answer to this decrying of art study and education. Our very small selection of Mr. Job's pictures herewith given—a small percentage taken from his charming home gallery—all go to show what study, backed up by taste, can and has accomplished.

Taking them in any order we please, we cannot

but find them helpful, suggestive, instructive.

"On Guard."—The simple dark background and long parrow shape are in excellent harmony (and "keeping," as the painters say) with the theme. The few strong lights on the armour are just enough to suggest its metallic nature without being obtrusive. The quiet, thoughtful expression on the face is again in good taste with the quiet style of treatment. The lighting is broad and effective. The margins of the picture are wisely kept well subdued.

"Ploughing on the South Downs."—It was a happy thought to catch the ploughman with his back to us, and also to get the horses standing out against the sky-line. The lighter tones of the ground behind the man help to give emphasis to his figure. The position of the man's arms and legs are very happily caught. The old village church to our right reminds us of man's first work to till the

ground and wring from it his daily bread, and finally to be himself sown in "God's acre," as our forefathers called the churchyard. The simplicity and directness of the composition is an eloquent lesson in the greatest art of all, vis., the art of leaving out.

The Return of the Flock.—In this instance we have a picture where the artistic sentiment is strongly pronounced. The fine evening sky at once suggests glowing yellows, reds and purples. The homeward trending flock tells us of declining day. The shadows are lengthening, and Sol is casting a sheaf of golden arrows in our face ere he gathers round him the cloud curtains of the night. The tree coming against the strong lit sky enforces the light value of the higher tones. No human beings are in sight, but we n iss them not for the bleating flock recalls the thought of the shepherd not far away. The leading lines of the composition draw our attention along the road and on to the chief light of the picture.

Snow and Sunshine.—Here we have an example of the fine craftsmanship as well as artistic judgment of our artist. Perhaps there is nothing more crucial, more trying to the photographer than the rendering of sunlit snow. The temptation to under-expose and then over-develop seems almost universal whereas it were wiser to err both on the side of over-exposure and under-development rather than produce the usual snow scene of gradationless white paper. Here again is a lesson in simplicity and the art of leaving out what is not wanted. Be it noted that in winter the sky is often darker near the horizon as here shown, while in summer the horizon is often the lightest part. Note also how the leading lines draw our attention to the chief high-light, i.e., the sun-lit bank of snow contrasted with the tree beyond.

Evening Calm is an entirely charming picture—full of the poetry of suggested colour. Just the kind of subject that one can imagine would appeal to the great Turner. Once again we note the concentration of interest in the sail-clad vessel giving us our chief high-light and the other dark objects

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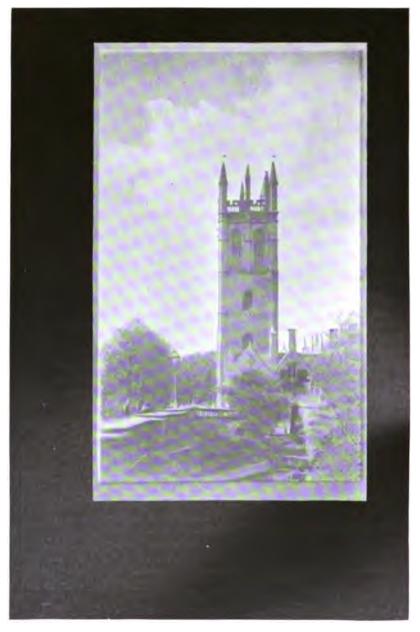


Fig 3.

THE PICTORIAL WORK OF CHARLES JOB.

grouped around. The man in the small boat to our left is a happy touch aiding greatly in the suggestion of space and distance. To concentrate interest on the craft and suggest quiet and calm, quite wisely the sky has been treated with artistic restraint. There is just enough suggestion of hazy atmosphere to suggest that half-sultry calmness when sounds seem magnified and distances reduced. The subtle gradation in every part of this fine work should be studied with patience and care.

The Top of the Hill is an altogether charming example of refined taste and skilful handling. The pose and placing of the figure in the picture space are eloquent lessons in composition. The texture rendering of the man's smock cannot fail to be The massing of the flock behind the shepherd shows that our artist has an eye quick to see and a prompt hand to seize his subject at the critical moment. The subdued treatment of the hills in the distance, lightened and simplified by ærial perspective, will, of course, be noted for our own future guidance. The wise subduing of strong interest in the sky also teaches us its lesson. For, of course, the reader has already laid it well to heart that no one part of a good picture competes with any other part. The law of principality at once makes the shepherd the feature to which all other parts are duly subordinated.

Carting Beach is an example of a subject treated in bold broad masses of light and shade. The cart and two men near us form a most impressive group, but it is open to question whether the horse at some little distance away—strongly relieved against a light ground—does not somewhat weaken the cohesion of the composition as a whole. It is perhaps just one of those cases where one feels that we have a good thing before our lens despite some portion which is not all that could be desired.

Perhaps this may show how far Mr. Job occasionally swings the pendulum towards the impres-

sionistic camp.

Strand on the Green.—By accident rather than design this in turn shows us a picture which goes somewhat towards the realistic side of pictorial

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photography. It is indeed so hard to say which of the two schools deserves most support that we lean to the opinion of the learned judge who said "the best judgment was always that which is withheld." When both give us so much artistic enjoyment why adjudicate at all? If the violet is sweet smelling may not the rose also find favour? This picture irresistibly reminds one of a mezzotint in quite the best style of that charming art method, and there seems an especial fitness between this old-world bit of "near London" and its style of treatment. Note once again the broad arrangement of light and shade, and how the dark trees help the light falling on the face of the houses. The trimming of this picture shows excellent taste. The rendering of the water and suggestion of clouds are also quite delightful.

A Woodland Path.—Let the reader mentally contrast this with "the usual thing"-i.e., "f/64, and every leaf sharply defined." Such a thought gives one cold shudders, and suggests trees bearing castiron leaves—or things made of wire. have not a single leaf sharply cut, but instead of seeing a leaf we have foliage—leaf-clad trees in all the beauty of their varied lights and shadows. Broad masses of inviting leafy shade. The path at our feet suggests a stroll beneath their umbrageous protection while we look beyond upon the glowing light of summer sun. The broad treatment of these trees should be carefully studied by every landscape camera man. Let him note the absence of sharp outline, of solid dark, of glittering light. is not a presentation of separate leaves, but of foliage.

All too soon do we find ourselves at the end of our enjoyable wanderings in "pastoral scenes and leafy lanes" under Mr. Job's sympathetic guidance. Not only may we gather pleasure and instruction from them, but what is perhaps even yet more valuable, viz., a new eye to look for beauty hitherto passed over. Perhaps it is not overstating matters to say that the education of the eye is the true foundation of all graphic arts, and without this we

are only building on a foundation of sand.

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Introduction to Platinotype Printing.

By E. T. Holding.

LATINOTYPE printing is one of the simplest and most satisfactory processes in the whole practice of photography. The process itself offers so few difficulties, and the results obtainable so many advantages over most other printing methods, that it is surprising it has not

been more widely used by the amateur worker. Compared with carbon printing, certainly we have not such a range of colour, and compared with bromide printing, those of limited leisure have not the advantage of being able to carry through the whole operation by artificial light. But when this is said, what process can compare with platinotype for absolute permanence of result, for beauty of tone, and for the simplicity and speed with which these results may be obtained?

is ensured by the fact that a Permanency platinotype print consists of a fine deposit of platinum, with a pure paper support. The first is a metal which is, of all metals, the least liable to deterioration by any known reagent, whilst the paper upon which it is deposited is, if of the right quality, not likely to perish under ordinary circumstances in less than some hundreds of years. Here, then, we have a means of handing down to posterity our choicest productions, with a full assurance that, whether they are worthy of such a measure of immortality or not, they will at any rate survive the ravages of time. Permanence alone would not ensure popularity to any photographic printing process. But, as hinted above, the tones we may command in the simpler branches of platinotype printing are enough in themselves to make us enthusiastic. They range from a rich and vivid black to the most delicate pearly grey, and from a deep sepia to a golden brown. Further than this, as will be demonstrated by other writers in this number of The Practical

Photographer, other colours may be obtained, but I speak only of the simpler operations of ordinary development, and of tones within the reach of the beginner.

Care of the Paper. The paper is purchased in tins, which are sealed in order to protect their contents from atmospheric action. A small lump of chloride of calcium is included in each tin, to absorb any moisture that may be in the air enclosed in the tin when it is sealed, or which may penetrate after the tin is

opened.

The paper should be transferred from the packing tin to a properly constructed tube, from which pieces may be removed as required. This is known as a "calcium tube," and may be purchased in various forms. It consists of a metal cylinder, capped at each end, and divided into two compartments by a perforated partition. The smaller compartment contains pieces of calcium chloride. This will be found to be a hard substance which, so long as it remains hard, indicates that the air in the tube is perfectly dry. Should it become soft, proving that it has absorbed moisture, it should be dried on a shovel over the fire, or in an oven. The supply in the storage tube may be renewed from time to time by inserting the pieces removed from the tin in which the paper is purchased.

The larger compartment holds the paper, which is protected from contact with the calcium by the division. The edges of the lids, which fit closely to the cylinder, are covered with rubber bands which make the joints air-tight, and preserve the paper from damp and contact with the atmosphere. In this way the paper will keep good for a considerable time. It has been known to keep in good condition for years, but at any rate may be

relied upon for some months.

The paper, in all operations preceding development, should be handled with care, and in subdued daylight or artificial light. The fingers should not be allowed to come in contact, more than is necessary, with the sensitive face of the paper, which is easily distinguished by its lemon yellow colour. It will be found that the paper is rolled with the



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INTRODUCTION TO PLATINOTYPE PRINTING.

sensitive side convex. This method should be observed when rolling the paper to re-place it in the tin, as the curl thus made will be useful in development.

Varieties of Paper.

There are some half-dozen makers of platinotype paper now selling their productions in Great Britain.

It does not come within the scope of my remarks to mention these in detail, nor is there, so far as I have experienced, much to choose between them for quality. The paper can be obtained in a variety of surfaces, ranging from smooth to very rough. There are also papers specially prepared to produce sepia prints, and there are some papers in which the image prints out, and which do not need, as the ordinary paper does, development before the picture is finished. These I shall deal with later, and speak first of the manipulaton of the ordinary paper for black tones.

Little need be said as to the best The Negative. kind of negative for this process. In these days of individuality in photographic work, it verges on the impertinent to suggest to a worker that this or that kind of negative suits this or that method of printing. The platinotype print will do as full justice to a given negative as any other process. If the negative is vigorous it will yield a vigorous print. The process will render detail as well as it will render breadth. It prints quicker than the ordinary printing out silver paper, so that results are obtainable from dense negatives in less time than by that method. Vigour can be infused into prints from weak and toneless negatives by methods which will be described.

Printing. Stress has been laid on the necessity for keeping the paper dry. This care must also extend to the printing frame and pad, which should be perfectly free from damp before using with platinotype paper. In case of doubt they should be dried before the fire or in direct sunshine before use.

Place the paper with its sensitive (yellow) side next to the negative; and between it and the back of the printing frame place a sheet of some

damp-proof material, such as thin sheet rubber, or the oiled paper used in letter-copying books, or use an old film. Print in a good light (even direct sunshine may be sometimes used) until all but the most delicate detail is observable in the print, which may be examined from time to time in a subdued light. The image will appear in a faint purple colour, and the printing will have been carried far enough when it has reached the appearance of Fig. 19. The paper should then be removed from the printing frame. If it is not convenient to develop at once, replace the printed paper in the storage tube, where it may remain for any reasonable time before it is developed, as no further action appears to take place between printing and development if the paper is properly cared for. Some workers will develop the accumulated prints of a week or longer at one operation, while others prefer putting the print direct from the frame into the developer.

Development. The object of development is to turn the faint purple image into one of the strength and colour desired. Prepare

as a stock solution the following:-

Potassium oxalate	
Potassium phosphate	. 🔒 oz.
Water	. 14 oz.

In mixing this stock solution hot water may be used for dissolving the crystals, as with cold water it is a lengthy operation. Let the solution cool before use. If blue-black tones are required, the solution should receive the addition of sufficient oxalic acid to make it slightly acid, say from 40 to

60 grains.

For use dilute a portion of the stock solution with an equal quantity of water, and use it at a temperature of 65°F. If colder than this granular prints will result. This diluted solution may be used repeatedly, so long as it operates successfully. It should be kept separate from the stock solution, and as it becomes used up, additions made from the stock solution in the above proportions. To develop the print, place the developer in a porcelain dish, letting the developing solution be at least one inch deep, and the dish large enough to allow the print to be freely handled

INTRODUCTION TO PLATINOTYPE PRINTING.

Immerse the print, face down, in this while in it. bath, taking care to avoid the formation of airbells on the face of the print. Perhaps the best method of immersing the print is as follows:-On removing the undeveloped print from the tube or printing frame it will be found, as already stated, to have a slight curl, with the sensitive side convex. The paper can therefore easily be placed in the developer by first immersing, say, the left edge and then bending the print straight until all is under the surface of the bath. This method of immersion will force out any air that might get under the print, and allow the developer to do its work immediately. As soon as immersed, turn the print face up. If it is found that in spite of care some bubbles have formed on the face of the print, touch them lightly with the finger and they will disappear. The circular spot they make will develop out, but sometimes a slight mark remains. A little practice will ensure proficiency in this matter. The print will develop quickly, the image turning from grey to a deep rich black. It should remain in the developer until the desired tone and depth are attained (Fig. 18). No attempt should be made to rush a print through the developer in order to save, say, an over-done print. The only result of such a proceeding will be a half-developed and granular print.

Clearing. When development is complete, prints should be transferred direct, without intermediate washing, to a clearing bath made up as follows:—

 Hydrochloric acid
 1 oz.

 Water
 60 oz.

Each print should have three baths of this solution remaining about five minutes in each. The object of the bath is to remove the iron salts which are used in the production of the platinum image, and it is necessary that these salts should be entirely removed from the print. It will be noticed that though the development has removed a certain amount of the yellow colour of the paper, there is still much remaining when the print is placed in the first acid bath. This will have the effect of turning the first bath yellow, and probably the second

also, but in a less degree. The final acid bath should remain perfectly clear and colourless after the print is removed, otherwise yet another bath is necessary. The same bath can be used for more than one print at a time. A good plan is to fill three dishes with the bath, so that prints may be transferred from bath No. I. to bath No. II., and so on. When bath No. I. becomes very yellow it should be thrown away, the dish re-filled and used as bath No. III., No. II. becoming No. I.. always keeping the final bath quite clear.

After this clearing, the prints must be washed in running water for ten or fifteen minutes, or in a few changes of water, to remove the hydrochloric acid. Should this washing be insufficient to entirely remove the acid, the print would not suffer, but the acid remaining might possibly cause the paper

to decay prematurely.

The print may now be dried between sheets of blotting paper, or by hanging up. If necessary, heat may be used to accelerate the drying process, after which the print is ready for mounting, or it may be mounted while still damp. It will be seen that the whole operation is extremely simple and expeditious. By the use of heat for drying purposes a dry and mounted platinotype print can be produced in about half-an-hour.

It is, I believe, practically the Hot or Cold universal custom now to produce Development. black tone prints by the cold development process above described. Some workers, however, prefer the hot bath method, although it is difficult to say why. The only difference in the process is that the developer is used at the strength of the stock solution, and is heated to a temperature of 100-150°F. In this bath the development is almost instantaneous, the image coming up to about full strength immediately the print comes in contact with the bath. For those who have large quantities of prints to develop, this of course is an advantage, as the working is carried through much more quickly than by the cold bath process. But for him who works in photography for the love of it, i.e., for the amateur, the cold bath has distinct advantages. It enables one to watch the

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INTRODUCTION TO PLATINOTYPE PRINTING.

delightful process of development, and it dispenses with the bother and need of keeping the developer at a given temperature. A special paper is necessary for the hot bath for black tones, as the ordinary black paper if developed at a higher temperature than 65° F. will attain a brownish colour. Of this I shall have something to say later. The developer may be heated in the porcelain developing dish over a spirit lamp or gas, a thermometer being used to gauge the temperature. If a sheet of tin be placed between the flame and the dish, there need be no fear of cracking the latter. It is better to use a porcelain dish than one of enamelled iron. Much may be done with a print Modification. during development to improve its ultimate tone. We are by no means confined to the black or blue-black tone in the use of "black tone" paper. If, as stated in the preceding paragraph, a temperature higher than 65° F. be used, the colour of the print will be found to be of a slightly brownish tone. This, in the opinion of some workers, is much to be preferred to the cold black tones. That, of course, is a matter of taste. But of the fact that the temperature affects the colour of a print, advantage may be taken in more ways than one; for the warmer the developer the further will the development go, and what would be an under-timed print for a cold developer, may be a fully-timed print for a developer heated to 170° F. In illustration of this I show in Fig. 17 a reproduction of a print which has been cut into two pieces before development. The print was slightly under-printed for cold development, as will be seen by looking at part A, which was developed at 65° F., and in the original has come out a flat, under-done print of a cold grey colour. Part B was developed in the same bath, heated to 170° F., and has produced a print, apparently fully-timed, with full gradation, and, in the original, of a rich, warm brown-black of a very pleasant colour. Had the developer for part B been heated to boiling point, the result would have been an over-timed print, and with the higher lights degraded. We may therefore use these facts in two ways. If a warm black is desired, slightly

under-time the prints and raise the temperature of the developer. And on the other hand, if by any chance the print has been removed from the printing frame before being fully printed, the heated developer will save what otherwise would be a faint and toneless picture. The last point mentioned will doubtless be of more use to the beginner than to the practised worker, as it is not quite easy at first to judge when the printing has gone far enough. I should advise the beginner to cut off a bit of the print if there is any portion that he purposes trimming off before mounting, and trying this little piece in the normal developer before immersing the entire print. If it does not reach the desired strength of colour, the warmer developer will bring it up to the necessary strength.

Over-exposed Prints. Should a print have become over-exposed, i.e., over-printed, we must not develop it in the normal bath. The developer should in this case be diluted with water to half its strength, and the print removed to the clearing bath on attaining the right stage of development. Or the print may be developed in the usual developer, and a dark, over-done print result, which may be toned by the Packham formula mentioned on page 63, which requires an over-timed print for its best result. Or glycerine may be introduced into the developer as described on pages 15, 56.

Sepia Papers. The brownish tones mentioned above are in reality only a shade or so removed from black. For the production of genuine sepia tones, either the special papers prepared for that colour may be used, or the developers described by other writers in this number may be adopted.

There are one or two sepia papers which may be purchased requiring hot development; others for cold development. Special development salts are recommended for use in each case, and although more or less satisfactory results may be obtained by the use of the developers given above, the special developers are strongly to be recommended.

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The sepia papers are more sensitive (i.e., to light) than the black, and will not keep as well. I have found that the hot bath paper gives a darker and richer colour if kept in the sealed tins for a few months after manufacture, the new paper being rather inclined to be "hot" in tone. The developer should be heated to 150° F. for the hot development paper. The subsequent operations are the same as those already described for black papers. Special care should be exercised in keeping the paper from direct daylight during the development and first clearing bath.

There are one or two makes of this Printing-out paper to be had, though it has but Paper. a very limited vogue. As its name implies, it differs from the ordinary platinotype paper in that the image is clearly seen, and requires no development. The chief objection to this paper is its extreme slowness in printing, even in direct sunshine. The printing should be carried further than is desired in the finished picture, as the strength is reduced in the clearing bath. Depth of tone may be obtained by holding the print, before fixing, over the steam from boiling water. Fixing is done in a bath slightly weaker than that used for ordinary platinotype prints:—

which bath should be repeated until all trace of the yellow stain has disappeared. Prints fixed without steaming will be found to have a delicate pearly grey tone, very well adapted for broad and simple effects.

The operations I have hitherto attempted to describe have been concerned simply with the production of a straightforward print from the negative—a print that will give an exact positive of all the qualities of the negatives used. The most fascinating branch of platinotype printing, however, is undoubtedly that in which, with the use of glycerine, the worker is enabled to introduce such changes and modifications into his print that it shall represent what he intended, rather than merely what the lens recorded.

It has been found that a developer Control. to which glycerine has been added acts much more slowly upon the paper than in its normal state. In other words, the glycerine protects the image from the developer. The greater the proportion of glycerine, the slower development. If, therefore, we have a print, one portion of which we wish to develop more completely than another, the part to be retarded should be developed with a glycerine-diluted developer, the normal developer being used on the other part. In the application of this principle lies boundless scope for artistic, or at any rate individualistic, interpretation of the subject depicted, and it may be utilized in the following ways:—

(a) For the slow development of over-timed prints, in preference to using a weak developer.

(b) For retarding those portions of the picture that would otherwise develop too strongly.

(c) For retarding portions of the picture with a view to emphasising other parts.

(d) For the purpose of vignetting.

(e) For the purpose of completely obliterating portions

of the print.

In the hands of a master, then, an undeveloped platinotype print may become almost as complete an expression of his ideas as though he had himself wholly created it. Emphasising here, retarding there, and in places entirely obliterating, he works with almost as free a hand as does a creative artist. So much, indeed, depends upon the worker's individuality, his appreciation of the possibilities of the subject printed, and upon his manipulative capacity, that more failures than successes may be expected with this branch of the work. No instruction can be given in it, and all that can be done is to suggest the simplest methods of work, leaving each individual worker to face alone the artistic problems involved. Figs. 13 and 14.

Regarding point (a), add 1 oz. of glycerine to 4 oz. developer. This will be sufficient to retard the development of an over-timed print. Pass the developer over the face of the print with a tuft of cotton wool, or with a broad flat hrush, taking care that it is evenly laid on and that it gets into the pores of the paper. For this purpose it is a good plan to lay the print face up on a piece of glass, or ogle



On Guard.

INTRODUCTION TO PLATINOTYPE PRINTING.

on a board covered with American oil-cloth. A few drops of glycerine under the print will keep it flat, and prevent it sliding about as the developer is applied. As soon as the desired tone is reached place the print in the clearing bath, wiping it carefully over while in the bath with a tuft of cotton wool; otherwise the development may continue under the glycerine until the acid bath has dissolved

the glycerine and got to the print.

Points (b) and (c): Coat the portions to be retarded with the above glycerined developer, and immerse in the normal developing bath. If the retarded parts do not come up quickly enough, brush them over while in the bath. This will remove some of the glycerine, and allow the normal developer to get to work. If the retarded parts are not sufficiently retarded, remove the print from the bath, blot it carefully with the blotting paper specially prepared for photographic use, coat the parts with

pure glycerine, and place again in the bath.

Point (d): For vignetting, run a few drops of pure glycerine on the face of the print, spreading it with a clean flat brush evenly over the entire face of the print. After waiting a few minutes to let this soak well in, blot off any superfluous glycerine. Now brush the glycerine developer over the portions to be developed. Should the development proceed too slowly, use a stronger developer with less glycerine in it. Proceed until the full tone desired is obtained before placing in the clearing bath. Use cotton wool as above to remove the glycerine. The portions of the print protected by pure glycerine, and not reached by developer, will disappear in the clearing bath, leaving pure white paper.

Point (e): A much wider subject than vignetting. Much depends on the character of result desired. Those portions to be retained in the print may be developed either with the brush charged with the normal developer or with the glycerine-diluted developer. It may or may not be necessary to coat the paper first with glycerine. After the foregoing notes this must be left to the worker's discretion, everything depending upon the character of the

result aimed at.

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Notes on Platinotype.

By HENRY W. BENNETT, F.R.P.S.

T is impossible to over-estimate the importance of eliminating as perfectly as possible all the iron salts from a platinum print. The image itself is stable, but the presence of iron in the finished print will inevitably lead to a degradation of the paper basis. This discolouration will, in extreme cases,

extend to the lighter parts of the image; and a damp or impure atmosphere will intensify this deterioration and also make it occur much more

rapidly.

In order that platinotype prints may be least liable to any change or deterioration, careful attention must be given to the operation of clearing. It should be regarded in the same light as fixing a negative, and considered to be equally important.

Pure hydrochloric acid should be used. This should be as colourless as possible. The strength of the clearing bath should be one part of acid to fifty or sixty of water; under no circumstances should it be weaker, and with a stronger bath there is too great a tendency to soften the paper.

The acid solution should be used very liberally, and care taken that prints are well separated. Four or five separate changes of solution should be used, the prints not remaining in any one for more than four or five minutes. This is most important in

regard to the first two baths.

In using a given quantity of solution it will be found far more effective if divided into five parts than if used in three changes only, the total time of immersion of the prints being the same in each case.

A simple test for the completion of the work of the acid bath is to take some of the solution in which the prints have remained for at least four minutes and examine it in a clear glass, so that the light is transmitted through two inches of solution. This should appear as colourless as water; the faintest trace of yellowness indicates that iron salts still remain in the prints in such a condition that further acid treatment will remove them. It will be found quite impossible to attain the freedom from iron that will satisfy this test by using three acid baths only in all ordinary cases. By using five as suggested, the acid treatment need not be prolonged, as the changes may be made more rapidly.

Modifications. For the development of platinotype prints neutral potassium oxalate may be used alone or with the addition of one-fourth of its weight of potassium phosphate. The latter will produce a purer black tone than the oxalate alone, which has a tendency to yield a somewhat dirty colour, especially in prints from fogged negatives that print very slowly.

The most satisfactory strength for stock solutions is, in the case of the simple oxalate bath, four ounces in fourteen of water, in the other two ounces of the mixed salts in twelve of water. These solutions may be used in this strength or diluted, but a very appreciable difference will result

from the variation in strength.

A concentrated solution will produce a more vigorous print than the diluted developer yields, and it will also give a purer and colder tone. Prints from negatives with very great contrast will be much softer and more harmonious if the developer is composed of one part concentrated solution to two or three parts of water, but the quality and tone will be distinctly inferior to those developed in the concentrated solution. This difference in tone is most marked in the plain oxalate bath. For ordinary work the full strength should be used.

A concentrated solution may be used many times; it will keep indefinitely whether used or not. After using, however, it is imperative that it be kept in the dark. A diluted solution will not keep so satisfactorily; it steadily deteriorates. It should be noted that the time of development increases with the degree of dilution of the developer.

Solarisation is difficult to avoid in printing from negatives that are too strong for this process. Its effect may be minimised by using a weak solution for developing.

The rusty brown appearance of the solarised parts is much less pronounced, and the warmer tone of the print assists in rendering it less apparent.

The ageing or maturing of the Age of Paper. paper, after first opening the original tube, has a considerable influence on the character or quality of the prints. They are softer in their contrasts and less brilliant, and, as the age of the paper increases, distinctly warmer in tone. Paper that has been kept two or three weeks should always be used for prints from very strong or harsh negatives wherever practicable. It possesses the additional advantage that it does not solarise so readily. It is assumed, of course, that the paper has been stored carefully in a calcium tube.

Prints not developed soon after exposure are similar in character to those on paper that has been kept. A greater effect of age is produced in a given time, however, probably on account of the unavoidable exposure to atmospheric influence during printing inducing a change which continues more rapidly than the very slight effect of age in paper carefully stored.

Maxims about Mercury-Toned Platinum Prints.

By WILL A. CADBY.

T is well to remember that a little mercury will often turn what would have been a dirty grey-looking print into a pleasantlywarm sepia picture. If the contrast in a negative is too strong, mercury in the bath helps to reduce it. The hotter the bath the more effectual the toning effect.

The mounting papers that suit black platinum prints, will be found absolutely unsuitable for those toned with mercury. As one seldom has exactly the same proportion of mercury in the bath, the tones of the prints are likely to vary considerably. consequently, mounting becomes a most important

Ploughing on the South Bowns.



MAXIMS ABOUT MERCURY-TONED PLATINUM PRINTS.

question. If a print when laid on a mounting paper takes on a pinkish hue, it is very certain that we have not selected the right tone of mount to suit the picture. But if the selection of colour is towards a warm yellow, we may safely surmise we are on the right track, and have only to beware of introducing other colours that may destroy the effect.

No absolutely cold-coloured mounting papers will suit toned prints; and even when a white is used, it should be a yellow white, like the beautiful Japanese parchments so easily obtainable now.

The number of clearing baths should be increased, but the strength should be reduced when using

mercury.

On the Use of Rough and Smooth Paper.

The three grades of platinotype paper usually obtainable in England give sufficient variety for most work, although at times one could with great advantage make use of the beautiful surfaces prepared with platinum by the "Helios" firm in America.

With a correct negative the smooth paper will give detail almost equal to a P.O.P. print, and is obviously the paper to use for fine or small work of every description, such as small landscapes, delicate portrait studies, or reductions; and for copying such objects as maps or diagrams, where every

detail is of importance.

Personally, I cannot imagine this paper suiting any subject that is larger in size than half-plate; for its strong point is the delicate interpretation of detail, which is not usually an essential feature in large pictures. The surface of this fine paper is admirably adapted for painting on, consequently, it is just the thing to use when the worker essays to paint miniatures on a photographic basis.

The medium paper possesses a surface of much more value to the pictorial worker, and being made in a much stouter quality, it lends itself better to the limp paper mounts that have become so generally popular. It has a slightly rough surface, and is suitable for all subjects up to

whole-plate.

But probably the paper that is most strongly represented in the exhibitions is that known as rough. It is a power for good in artistic hands, having a rough surface without coarseness, and a depth and luminosity in the shadows that is, I believe, unsurpassable. It is essentially the paper to use for large portrait and landscape work.

I have purposely only mentioned the hot bath papers, as I find they are much better adapted for mercury toning during development than the cold bath papers, the latter often showing under this

treatment a double toning.

Pictorial Notes for Platinotype Workers.

By CARINE CADBY.

HEN to sepia s tion, as whether sented

HEN to use black platinotype and when sepia seems entirely a personal question, as each of us has his own ideas whether a subject should be represented warm or cold.

Black and Sepia. For instance, one might think there could be no question about the matter when winter landscapes

with snow were the subjects. If snow is not cold, what is? The luminous blacks and greys that black platinotype gives seems to suggest the shadows in the snow so satisfactorily, and such a pure white can be obtained. Yet such well-known workers as Demachy and Eickmeyer have chosen to render snow landscapes in a warm brown, and this warm-toned snow has not looked as peculiar as one might suppose.

Still, for the not very advanced worker one feels inclined to advise black platinotype being used for winter and snow subjects, for mists of all kinds, and for most seascapes. But sepia for those subjects in which one wishes to express warmth; for example, an old tree, an autumn landscape (or any landscape in which one wishes to suggest sun), cornfields, sandhills, etc. Most figure studies, too, will be more pleasingly rendered in sepia than in

black platinotype.

PICTORIAL NOTES FOR PLATINOTYPE WORKERS.

With portraits it is still more difficult to lay down any hard-and-fast rule, for here the individuality

of the worker cries out for a free hand.

Steichen, when working in Paris, once refused to show a print of a sitter because it was printed in too warm a tone. It must not be seen until a black print of the portrait had been obtained; and not from any pictorial exigency, but for the purely personal reason that the sitter happened to be possessed of a very dignified reserve, which he felt could only be correctly suggested by very cold tones.

It must be remembered that sepia platinotype is complimentary to most portraits, so many faces are improved by the suggestion of warmth; and it is only the few, and these generally portraits of men, that black will suit best.

With flower studies I have found black best for rendering white and blue flowers, like the lily, snowdrop, hairbell, etc.; but for those of warmer

tints sepia will be found more satisfactory.

Brush development of platinotype, Brush by which I mean using the developer Development. with half its quantity of glycerine and working up the print with a soft brush, is a

great help in getting pictorial effects.

If it is carefully and slowly carried out a vignette can be made, the head and shoulders alone being developed. Also a success can be scored off a failure -i.e., a negative that is faulty in some respects can by this partial development of the print be made to yield quite a good result. Platinotype being a process that demands a negative of correct density. it is good to have this process to fall back on when our negatives are not quite as correct as we might wish.

Glycerine and brush development can be used with advantage—

(1) To vignette.

When parts of the negative have to be (2)accentuated, parts subdued.

When the subject has not composed very well, and only a part of the negative is needed.

(4) When the negative is too hard. Digitized by Google

Preparation of Platinotype Paper. By KARL ENGELMANN.



OMMERCIALLY it is not likely to "pay" the small consumer to prepare his own paper. Nevertheless the intelligent amateur should be acquainted with the outlines of the process. Indeed it would be helpful to him in his studies to prepare a few pieces by way of

experiment.

The paper to be coated must be as pure as can be obtained. It is important to avoid any kind that contains even tiny specks of iron, zinc, or brass. The amateur will do well to confine his experiments to the produce of the well-known high-class papermakers such, for instance, as Schleicher & Schüll, Rives, Steinbach, Whatman, Zander, and the "O. W" (old water colour) papers.

We may conveniently group the various platino-

type processes into three classes:-

(A) Paper coated with a light sensitive salt of iron (e.g., ferric oxalate) which is exposed to light. This yields a partly visible image (in ferrous oxalate). The paper is now bathed with a solution containing a platinum salt, which deposits (develops) a platinum image. Papers of this kind are sometimes termed "Platinum in the bath papers." Owing to the nature of the developer—which when mixed for use does not keep long—this process proves not so economical as the others and is seldom now used. It is, however, capable of yielding quite as fine results as any other method. Development takes place at normal atmospheric temperatures.

(B) In this group of processes the platinum is mingled with the sensitive iron salt, and the two are applied to the paper in one operation. Similarly a ferrous image is produced by light. Then on applying a solution of potassium oxalate or other suitable substance a platinum image results. The



now filled with water, stirred and the precipitate allowed to subside, the supernatant liquid poured away and the washing repeated until the wash water no longer turns red litmus paper blue. Pure water is poured in to the 42 parts mark. Then 10 parts of pure oxalic acid are added. The mixture is well stirred and should now be quite clear. Water is added to reach the 50 parts mark.

Lead Iron Solution.—In 100 parts water dissolve 20 parts lead acetate, add 4 parts oxalic acid, heat, stir well, collect and wash, dry the precipitate of lead oxalate. Take 100 parts of the ferric oxalate solution, add 1 part of lead oxalate. Shake well and filter.

Sodic Ferric Oxalate.—This salt is obtainable commercially; a 50% solution should be prepared.

Potassium Chloroplatinite Solution.—The strength required is obtained by dissolving 15 grains of the salt in 90 min. of distilled water.

Sodic Platinic Chloride Solution.—Dissolve 15 grains of the yellow crystals in 120 min. water.

Oxalic-gelatine Solution.—In 40 parts water dissolve 4 parts gelatine and add 1 part oxalic acid. (Dissolve by aid of heat).

Mercuric Citrate Solution.—In 20 parts water dissolve 5 parts citric acid and 1 part yellow oxide of mercury.

Mercuric Chloride Solution.—Dissolve 1 part salt

in 20 parts water.

Gum Arabic Solution.—Dissolve 1 part gum in 2 parts water.

Sodium Oxalate Solution.—Dissolve 3 parts salt

in 100 parts water.

The Light of the Coating Room.—Day-light should be filtered through orange paper, and gas-light through yellow fabric. The sensitising solutions and mixtures should be kept in the dark.

Coating the Paper with the sensitive mixture must be done evenly and expeditiously. The solutions are distributed over the paper by means of brushes. But these must not be made with any metal parts, or spots and streaks will result. The brushes may be of hog hair. If too hard they will cause streaks. The common round string bound

PREPARATION OF PLATINOTYPE PAPER

glue brush may be used—or a tuft of cotton wool may be forced into the end of a glass tube. A convenient spreader is formed by bending a sheet of celluloid over a thin flat bit of wood $(4 \times 2 \times \frac{1}{8} \text{ ins.})$, covering the celluloid with a piece of swans-down and holding all together with a strong elastic band. The spreader is used like a squeegee. The paper should be an inch larger than a drawing board to which it is fastened by folding down a half-inch strip all the way round, and fixing to the edge of the board with drawing pins. The solution must not come in contact with these metal pins. The surface is lightly rubbed with rapid long strokes, first one way and then in a perpendicular direction until it is nearly dry, so as to prevent the formation of crystals or air bubbles.

Drying the Paper is a matter of great importance. The drying should not occupy more than half an hour. This may be done at a temperature of about 130° F.

Jensinsink Pormule. Ci	ass r				
•	A	В	O	D	
Lead iron solution	2 5	10	50	. 25	parte
Mercuric chloride solution	1		—	. —	•
Chloroplatinite solution		1	3	. 4	
Sodic-platinic solution	—	—	4	. —	••

Sensitiaing Formula Class A.

Developers-

(1) Water, 100 parts; potass. phosphate, 5 parts; potass. oxalate, 10 parts. Add just before use 10 parts chloroplatinite solution.

(2) For bright contrast results:—Saturated solution of potass. oxalate, 400 parts; glycerine, 50 parts; chloroplatinite solution, 10 parts.

Sensitising Solutions. Class B.—Black image by hot development—

(1)	Chloroplatinite solution 4	
	Ferric oxalate ,, 5	,, .
(2)	For gelatine-sized papers :—	
	Chloroplatinite solution 4	••
	Ferric oxalate , 6	•••
	Oxalic gelatine 1 to 2	•••

Sepia image by hot Chloroplatinite sol	dev	elopment—	40 parts.
Ferric oxalate	,,		60 ,,
Mercuric chloride	,,		10 ,,
Sodic-platinic	.,		1 part.

Sensitising Solutions. Class B.—Black image by cold development—

- .			A		В		O	
Chloroplatinite	solu	tion						parts.
Lead iron	**	•••			9			
Ozalic gelatine	,,	•••	-	•••	3	•••	_	**
Sodic-ferric	••	•••						••

Sepia image by cold development. Preferable to use agar-agar or sizing—

Ferric oxalate solution	
Chloroplatinite ,,	40 ,,
Mercuric citrate ,, Sodic-platinic	1 nart.
	the last-named constituent
may be doubled.	

Sensitising Formulæ. Class C.—The paper is sized with arrowroot, or agar-agar—

The following may be applied to paper without preliminary sizing—

Sodic-ferric solution 24 parts.
Chloroplatinite,, 36,
Gum solution , 24,

If increased contrasts are required, 1 to 3 parts of sodicplatinic chloride may be added.

General Notes on the coating solutions.—For rough surface papers more water may be added to the extent of 50 per cent. of the total bulk previous to dilution. Agar-agar sizing favours the production of warm black or sepia toned images. Increasing the sodic-platinic solution tends to increase contrast, and gives brilliant prints. It also helps in the keeping of the paper.

Size-free papers should first be coated with agaragar, dried, and then re-coated with arrrowroot.

Sizing fabrics, e.g., silk muslin before sensitising:

- (1) Arrowroot, 50 grs.; gelatine, 18 grs.; water, 12 ozs.; alum, 10 grs,
- (2) Water, 500 parts; alum, 20 parts; soluble glass, 20 parts.

After sensitising, stretch the fabric on a light wood frame and dry thoroughly. Print by actinometer, and develop at once after printing.







Fig. 13.

DIRECT PRINT.

Chemical Jottings.

By J. J. JOHNSON.

Platinum in a fine state of division is known as platinum black, and this forms the photographic picture. Platinum black has the power or property of condensing oxygen upon the surface, and so forms an oxidizing agent.

Platinum dissolves in aqua regia (3 parts hydrochloric and 1 part nitric acid). If the solution so formed be evaporated to dryness, then redissolved in water and again evaporated, we obtain platinic chloride, platinum tetra-chloride, Pt Cl₄,

5 H₂O, a non deliquescent red crystalline salt.

If platinic chloride (tetra chloride), be heated to 250°F, it forms a platinous chloride (di-chloride), a greenish powder insoluble in water. It is soluble in hydrochloric acid, forming a red brown solution known as chloroplatinous acid. Let this be evaporated to dryness over a water bath, and then the solid dissolved in the minimum quantity of water, a quantity of pure potassium chloride, equal in weight to the quantity of metal platinum first dissolved, is taken. This is dissolved in a minimum quantity of hot water, and then added to the chloroplatinous acid. After well mixing, this is slowly evaporated, when red crystals of potassium chloroplatinite separate out. (Potassium chloroplatinate, a yellow crystalline substance, is not to be confused with the platinite).

Reactions or tests for platinum salts:—

 Sulphuretted hydrogen—a slow forming brownblack precipitate.

2. Ammonia—a yellow crystalline precipitate.

3. Ferrous sulphate saturated solution—a black precipitate on boiling.

4. Add excess of soda carbonate and some grape sugar—boil—a black precipitate is thrown down.

Potassium Chloroplatinite may be prepared as follows:—In 100 parts of distilled water dissolve 50 parts platinic chloride. Bring this solution to boiling point by means of a water bath. Now pass into it a steady stream of washed sulphur dioxide

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(sulphurous acid gas). The yellow liquid presently turns red, showing that the required salt has commenced formation, i.e.:—the platinum salt is changing from the platinic to the platinous state. From time to time remove a small quantity of the liquid with a pipette, and add strong ammonia. If any platinic salt yet remains unconverted, we shall have a yellow precipitate of ammonium chloro-platinite thrown down. The gas must be passed until conversion is complete, but stopped at that stage, or the platinum will be thrown down as a sulphide. But if insufficient gas has been passed, some platinic salt will remain unconverted, and be thrown out as potassium chloroplatinate in the subsequent operation.

The right stage being reached the vessel is set aside to cool. We now prepare a 50% solution of potassium chloride in hot water. This is added with stirring to the platinum solution, when the desired chloroplatinite of potassium separates as a red precipitate. This is allowed to collect, and washed in a little water, and then in alcohol until it ceases to give an acid reaction.

As the desired salt is soluble in 6 parts of water, it is obvious that as little water should be used as possible, or a serious loss of the precious metal will take place.

Another Method.—Take 9 parts of platinic chloride, and dissolve in 270 parts water; add 1 part potassium hypophosphite. The solution is kept just below boiling for several hours, when the solution becomes sufficiently concentrated to crystallise out the salt on cooling.

If the liquid be boiled there is a probability of the reduction having gone too far, and other reactions taking place.

Another Method.—In 300 parts of water dissolve 24 parts potassium platinic chloride, add 12 parts potassium chloride, and 12 parts potassium hydrogen sulphite (bi-sulphite). Boil for 20 minutes, then put in an evaporating dish, when presently the salt separates as red crystals.

Residues.—Waste sensitizing solutions, and "platinum in the bath" developers, are the richest

in metal, and therefore most important.

(1).—Make a saturated solution of sodium formate, and add this to any platinum-containing solution, slowly with much stirring, and warm gently, when the precious metal will be precipitated as a black powder, which only requires washing with hot hydrochloric acid to remove any iron, and

then washing with hot water.

(2).—To a solution containing platinum add ammonium chloride and potassium chlorate in the proportion of ten parts of the chloride to one of the chlorate. Shake or stir well and set aside for a day or two, when a bright yellow precipitate of ammonium chloroplatinate will separate out. This precipitate should be collected and washed with alcohol. This is collected, dried and heated in a porcelain dish, when white fumes of ammonium chloride pass away, leaving platinum black behind.

(3).—Solutions containing only small quantities of platinum may be healed by suspending in them plates either of zinc or aluminium. The solutions should be slightly acid when the platinum is thrown down as a black powder, or it may adhere to the metal plates. From there it must be brushed

off and allowed to settle.

Small particles of zinc are removed by adding

more hydrochloric acid.

Copper impurities in the aluminium are removed

by hot nitric acid.

(4).—To the developer add one-fourth its volume of a cold saturated solution of ferrous sulphate. Mix and slowly bring to boiling point in a large porcelain evaporating basin. The platinum is thrown down as a black powder. This is collected on a filter and washed by several rinsings of warm water

Spoiled prints, stale paper, print trimmings, etc., should be collected and burnt separately, and the paper and platinum ash collected. This black powder is placed in a porcelain or glass vessel, and covered with aqua regia (i.e., 3 parts hydrochloric acid plus 1 part nitric acid), well stirred with a glass rod, and then warmed up to about 130°-140°F.

The vessel is now covered with a plate or saucer and left on a warm oven top all night to digest. Next dilute this pastey mixture with 10 or 12 times its volume of water. Stir well, and remove all undissolved matter by filtration. Now add strong ammonia until the mixture smells of ammonia after well stirring. Ammonia chloroplatinite is thrown down. This is collected, dried and heated, when metallic platinum only is left. This residue should be digested with hot hydrchloric acid to remove any iron, and finally washed in plenty of water, when pure platinum black remains.

The Fixing Bath.—Put this in a shallow vessel, e.g., a large dish or tray, and scatter in granulated zinc. The platinum is thrown down as a fine black powder. After stirring at intervals, decant off the clear part. Throw the sediment and undissolved zinc into a deep vessel, e.g., jug, add water, stir well, pick out the bits of zinc, and collect the black powder (platinum) on a filter.

Testing for the Presence of Iron (ferric or ferrous).

To the wash water add a few drops of a ten per cent. solution of potass. ferrocyanide, when a blue precipitate or coloration indicates the presence of iron. Similarly, potass. ferricyanide gives a blue precipitate with ferrous salts and a brown colour with ferric salts.

To Distinguish between Platinum and Bromide (Silver) Prints.—Immerse the print in a saturated solution of mercuric chloride. A platinum print will remain unaltered. An untoned bromide print will bleach and become nearly invisible. A gold-toned bromide print will be made lighter.

Again, a 10 per cent. solution of potassium cyanide will have no effect on a platinum print. An untoned bromide print will be dissolved away. A

toned bromide print will be reduced.

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Faults and Failures.

By F. C. BURTON.

General Fog.—(1) Effect of unsafe light during the coating or drying of the paper. (2) Too high a temperature during drying the paper. (3) The ferric solution has been affected by light, some of the iron being converted from the ferric to the ferrous state. To test this add a trace of potassium ferricyanide (i.e., 1 drop of a 10 per cent. solution) to a small quantity (say 1 dram) of the ferric solution. A blue coloration indicates the presence (4) The paper has been kept too of a ferrous salt. long, or in the presence of damp atmosphere. (5) The paper has been fogged by light after printing and before development. (6) The use of alkaline potassium oxalate in the developer.

Weak Prints.—(1) Printing not carried far enough. (2) Developer too weak or too cold. (3) The negative has not enough density contrast. Weak negatives should be printed under pale yellow glass. (4) The paper has become damp. This is often accompanied by a granular or dusky appearance of the print. (5) The paper has been kept too long. In this case

the high-lights are probably degraded.

Washed-out-looking Prints.—(1) The use of developer too cold. (2) The use of a developer that has been kept in diluted form for too long time. (3) Using the same developer for too many prints, i.e., when it has become exhausted. (4) The use of a developer that has been exposed for some considerable time to daylight.

Black Comets.—(1) The use of a negative which has been intensified with mercury and not properly washed. (2) Blacklead on the negative in retouching. (3) Re-touching varnish on the negative. Damp spots on the negative or paper, i.e., due to

blowing on the paper, sneezing, rain, etc.

Streaks.—(1) Touching the bottom of the developing dish with the image-bearing surface of the paper during development. (2) Touching the paper with moist fingers.

Black Spots.—(1) Particles of metal in the paper, or from the containing tube. (2) Iron rust falling

on the paper. (3) Use of metal knife in cutting up the paper. (4) Dust particles settling on the paper after coating and during drying. (5) Damp fingers.

The platinum image rubs off the paper.—(1) Paper

dried too quickly after coating.

White Spots.—(1) Air-bells clinging to the paper during development. (2) Particles of calcium chloride reaching the surface of the paper. (3) Particles of lime falling from the ceiling on to the paper. (4) Particles of dust on the film. (5) Small crystals of hypo crystallizing out of the film in consequence of imperfect washing after fixing.

Paper is yellow in the high-lights.—(1) The sensitizing solution was alkaline, so forming a basic iron salt in the paper. (2) The paper was bleached or blued with ultramarine which turns yellow from contact with iron salts.

Prints look right when wet, but flat when dry.—(1) Paper insufficiently sized; to remedy, apply varnish, etc. (See page 58, 59). (2) Paper not dried quickly enough after coating. (3) Too much water in the coating mixture.

The prints are too black and white.—Hard contrasts. (1) The negative is too contrasty. (2) The exposure was insufficient. (3) Soft prints from strong contrast negatives may be obtained by printing under green or blue-green glass. (4) The developer was too cold.

Prints show brownish colour, local or general, though printed on black paper. The negative may have been intensified with mercury.

Granularity of the Image.—(1) Use of too cold developer. (2) Stale paper, i.e., affected by damp.

Colour is Rusty Black.—(1) Paper has been affected by damp. (2) Too much acid used in the developer.

Print is Blue Black.—(1) Developer too cold. (2) Developer too dilute.

Shadows are Brown Black.—Solarization due to excessive printing—especially prolonged exposure under clear glass. Use a less concentrated developer, or use it colder. Cover the clear glass parts of negative with matt varnish.

Paper turns Yellow.—(1) Clearing imperfectly done and leaving iron salts in the paper. (2) Use of impure hydrochloric acid for clearing bath. (3) Washing in water contaminated with iron. Immerse yellow-stained prints in a 5 per cent solution of oxalic acid and wash well afterwards.

Prints become Rotten.—Paper easily tearing. (1)

Insufficient washing after acid clearing bath.

Ink Stains. — Ordinary writing ink can be removed by a strong solution of oxalic acid. Printer's ink: apply warm spirit of turpentine and blot off with clean rag. When the stain is removed then apply pure alcohol. Anilin inks will usually wash out in running water.

Platinotype Pointers.

BY W. WALTON.

To each ounce of a cold saturated solution of potass. oxalate add 2 grains of copper chloride. This develops a warm black tone. Four grains of mercuric bichloride added to a cold saturated potass. oxalate solution gives a warm black tone.

For over-exposed prints from very strong contrast negatives, first pass the print rapidly through a dish of tepid water and at once transfer to a hot developer. This gives a greatly softened effect, but the high-lights of the paper are usually somewhat greyed. This may be useful for certain atmospheric effects.

Floating the paper on the developer, face down of course, gives rather more brilliant prints than the usual method of immersing the print in the

solution.

Rough Papers, as a general rule, yield warmer tones than those got by the same treatment with

smooth papers.

Negatives.—Flat, weak contrast negatives may be improved by printing under blue glass. Hard negatives should be printed under green glass, and very strong contrast negatives in sunlight under yellow glass.

Warm Sepia colours are obtained by using an old sepia developing bath and adding to it one part of a saturated solution of oxalic acid to ten parts of

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the old bath, and use at not less than 160° F. This developer will also give the best results obtainable

with stale paper.

Purple Browns may be obtained on sepia papers by using the following developer: Water, 10 ozs.; potass. oxalate, 1 oz.; potass. phosphate, 1 oz.; citric acid, 10 grs. Use at temperature 160°—180° F. By adding 30 grs. mercury bichloride sepia browns are obtainable.

Warm tones by cold development.—Stock solution: 20 ozs. water, 5 ozs. citric acid, 1 oz. yellow mercuric oxide. Warm the mixture, shake well, and filter when cold. This is added in varying quantity to the normal cold developer, according as one requires a warm black or red brown colour.

For prints lacking in contrast add \(\frac{1}{4} \) gr. of potassium nitrite to each ounce of normal developer.

Bright prints from over-soft negatives.—Water, 200 parts; potass. oxalate, 16 parts; ammonium persulphate, 1 part. In extreme cases the persulphate may be increased to 5 parts.

To soften slightly harsh prints.—Hold the print in the steam of a hot developer for a few seconds, i.e., until the paper begins to feel slightly limp. Then develop in hot bath. This gives slightly reduced contrasts and slightly warmer tones.

For very weak contrast negatives print lightly and

then intensify with platinum.

After clearing, wash in a dilute solution of washing soda—a bit about the size of a hazel nut in a pint of water is enough to neutralize the acid. By this means the paper is less likely to be injured.

Large prints on thin paper may easily be torn if held by the corners. To avoid this lift them by placing the spread-out fingers well under the print, and remove from the water slowly so that the weight of water on the print may be lessened.

Drying.—Not only does a platinum print look less bright when dry than when wet, but the sepia tones or colours are less vivid, i.e., duller, darker

when dry than when wet.

Prints drying dull owing to insufficient sizing of the paper are improved by immersion in a cold saturated solution of alum.





E. T. Holding. DEVELOPED PLATINO PRINT.



Fig. 17.

Warmer tones can be obtained by the addition of a small proportion of potass. carbonate to the normal developer.

Hot or Cold Developer.—The following developer may be used for cold, tepid or hot development. Water, 4 ozs., sodium citrate, 1 oz.

How to use Stale Paper.—Prints on damp paper usually show a slight general fog and the image is weak. The remedy is to print somewhat fully and develop with:—

(1) 10 per cent. potass oxalate solution, 8 parts; 1 per cent. potass chlorate solution, 1 part.

(2) Saturated solution potass oxalate, 1 part; glycerine, 1 part.

(3) Saturated solution potass oxalate, 20 parts; potassium hypochlorite, 1 part.

(4) Water, 20 parts; potass. oxalate, 4 parts; potassium (or sodium) phosphate, 1 part; sodium chloride, 1 part.

(5) To a normal developer add ‡ grain of potassium nitrite (not nitrate) to each ounce of developer.

(6) Normal developer, 20 ounce; sodium chloride, 1 oz.

Restoring paper fogged by damp.—It is doubtful if this can often be quite successfully done. It should be slowly dried in the dark at 100° F., and kept as close to this temperature during drying as can possibly be done. A higher temperature will induce fog in a quite good paper. The two best developers for papers of this kind are Nos. 5 and 6 on this page.

Paper discoloured by being kept in an atmosphere contaminated with sulphuretted hydrogen can be cleared in the following bath after clearing:—Sodium hypochlorite, 1 part; water, 20 parts; add hydrochloric acid just enough to produce a faint smell of chlorine.

Retouching Platinotypes.—Dissolve the coating of a piece of unexposed paper in water. Evaporate and collect the sediment on a soup plate and allow to dry as a thin layer, expose to light, cover with potass. oxalate solution, wash and collect the platinum black. Use this with just, and only just, enough

gum water to make the fine black powder adhere to the paper. Failing this, a bromide retouching

pencil will be found very suitable.

To Restore Faded Prints.—The term fading is sometimes—wrongly—applied to prints whereof the paper and not the platinum image has turned slightly yellow in consequence of imperfect removal of the iron salts. In this case "prevention is the best cure." Failing this inapplicable treatment in our case the next best thing to do is to rebleach the paper.

(1) To a pint of water add a teaspoonful of fresh bleaching powder. Stir well and allow the undissolved portion to settle. Decant the clear part for use. Slightly acidulate with hydrochloric acid until the solution has a faint smell of chlorine. Immerse the print until bleached.

wash and hang up in sunlight to dry.

(2) To 10 ozs. of hot water add an ounce of soda carbonate and an ounce of bleaching powder. Stir well. When cool decant off the clear part and immerse the print. (The former method is the more expeditious and satisfactory).

Calcium Chloride, for absorbing the moisture of the air in the storage tubes, should be used freely in quantity, and also frequently dried. This may be easily done by roasting the asbestos lumps on a shovel over a red fire or in the oven. These lumps may feel quite dry to the touch, yet when placed on a hot shovel begin to hiss and soften, showing that moisture is present. They should be heated until the hissing ceases and they appear light grey or white in colour. They are now allowed to cool until they can be comfortably handled. wrapped up in two or three folds of muslin and restored to the receptacle at the bottom of the storage tin. These lumps should be collected from the tins in which the paper reaches us from the manufacturer. Additional supply can be prepared by making a cold saturated solution of calcium chloride and then adding asbestos fibre until a pastey mass is obtained. This is then made into little balls and roasted over the fire. Or small pieces of pumice stone may be saturated with the calcium chloride solution and then baked dry.

The Principles of Platinotype.

By CHAPMAN JONES, F.R.P.S., F.C.S., F.I.C.

T is not surprising that when photography was young, platinum should have attracted considerable attention. The metal is less easily acted on than silver and compounds of other metals in which photographic images can be produced, hence it would be expected to give a more stable picture.

Gold, which is comparable to platinum in its ability to resist adverse influences, gives feeble images of a reddish or bluish tint, but platinum, when finely divided by chemical means, forms a black powder

of very considerable tinctorial power.

These early experiments appear to have been all made with the ordinary chloride of platinum, that is, the one obtained by dissolving the metal in aqua regia, or with analogous compounds, mixed with various substances. Robert Hunt actually tried a mixture of platinic chloride with ferrous oxalate, and prepared various platinotypes.* Although his empirical experiments came near to the necessary conditions, he entirely failed to appreciate the part played by each constituent.

Platinum Combines with chlorine in two proportions, and the ordinary chlorine combined with a unit weight of the metal as the lower chloride. When, therefore, chlorine is removed from it, it does not follow that the metal will be deposited; the lower chloride may be produced, and this under the conditions that usually hold is soluble in water. If any image is produced the detail in the high-lights, where the action is slight, is almost certain to be lost, and the result is naturally a hard, chalky and useless print. The necessity for using the lower chloride, from

* The word "platinotype" was used as early as 1844 to indicate a print made by means of platinum compounds. It is a more general and inclusive term than "platinum print," as this indicates that the image consists of metallic platinum. Woodburytype, Playertype, stereotype, collotype, etc., may be compared with gold print, pigment print, etc., to make the difference between the two terms more clear.

which no chlorine can be taken without the deposition of an equivalent amount of metal, seems to have been first practically realised by Mr. Willis. But this platinous chloride is a very awkward substance to prepare, and also troublesome to use, for it is hardly soluble in water. Mr. Willis therefore employed its compound with potassium chloride, called potassium platinous chloride, or potassium chloroplatinite. This compound is a very soluble salt of a fine red colour, and as it is easily crystallised it can be easily purified. Perhaps it did not occur to the early investigators to use this substance, because the corresponding salt of the ordinary chloride, although crystallisable, is hardly soluble in water.

Platinum salts, even in the presence of sensitisers. are not usefully sensitive to light, and this is another reason why the early experiments were futile. The production of the platinum image is therefore always a secondary effect, resulting from the product of the action of light on some other substance. The sensitive substance is invariably ferric oxalate, not that this is the only available compound, but it has been found to be practically the best. The sensitive salt and the platinum salt are the only things really necessary in the preparation of platinum paper. As ferric oxalate cannot be crystallised and so obtained of constant composition, it is usual to prepare a solution of it and determine the proportions of its constituents by chemical analysis, and then to adjust them as experience has shown desirable. The prepared solution is mixed with the solution of the platinum salt, and a measured quantity of the mixture is spread over the paper with a pad and dried rather quickly that the liquid may not sink too much into the paper. Platinum paper, as at present prepared in quantity, is coated by machinery.

With paper prepared as just stated it is possible to get very decent prints. But a printing paper is not very likely to be commercially successful unless it will give good results with such negatives as are commonly made. Negatives now are generally thinner and flatter than they used to be, and in order to get a brilliant platinum print from such



Fig. 2I.

NORTH CHOIR AISLE, ELY.

C. Walker.

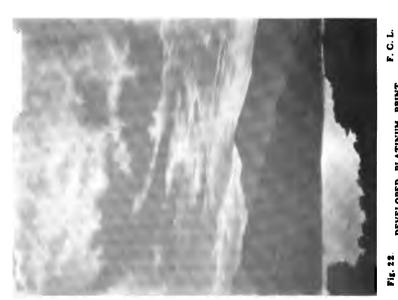
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P.O.P. UNTONED PRINT. Fig. 25.

F. C. L.



F. C. L. DEVELOPED PLATINUM PRINT.

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negatives, a small amount of the higher chloride of platinum is added to the coating solution (indirectly by the addition of an oxidising agent), and this has the effect, as already explained, of diminishing the deposit of platinum; it has indeed what is photographically called, a "reducing" effect, and this is especially noticeable in the high-lights where the deposit is slight. The print therefore shows more contrast, and is more vigorous.

Of course in the manufacture of The Paper. the paper there are many practical details that have to be attended to in order to secure a successful result. One of the most important is the quality of the paper itself. The sensitive solution penetrates partly into it, not resting on it or on a substratum as in gelatine, albumen and collodion printing papers, and any impurity that is in the paper will therefore affect the image. A speck of metal—copper, brass, zinc or iron, for example—would precipitate metallic platinum and give a black spot. The fact that an even and good image is obtained is practical proof of the good quality of the paper and of the sizing material used. The prepared paper, as every user

dry. Yet some photographers will say that the dryness is not so necessary as it is made out to be, and that old paper that has not been kept dry is sometimes to be preferred. The fact probably is that those photographers who find occasional advantage in stale paper do not want a good copy of the subject they have photographed, but a toned-down copy with detail suppressed, a print to suit their ideas rather than to represent the original. All sorts of accidents and faults may be welcome under such circumstances.

For good, straightforward work there is no doubt that the paper must be kept dry; otherwise it seems that the iron salt gets a little decomposed, and the paper gives a foggy print. And a foggy print is often a muddy-coloured one, for exactly the same pigment and in the same condition will appear bright or muddy according to the manner of its distribution. For example, the same carbon tissue will give a brilliant print or a muddy print accord-

ing to the negative used; and although the pigment must be the same in both cases, it is sometimes difficult to believe it.

Action of Light. When paper coated as described is exposed to light the ferric oxalate is decomposed, giving ferrous oxalate, so far as the light has acted upon it. The change of colour is slight, though often a sufficient guide for judging of the duration of the exposure that is desirable. The platinum salt is not changed. Platinum printing is therefore a printing-out process; that is, the full amount of chemical change is produced by the

light.

The subsequent "development," as it is called, is not development at all in the sense in which a negative is developed. In development proper the substance that removes chlorine from the silver salt is used in excess, and has to be so adjusted that it will take the chlorine from the salt that has been affected by light but not from the chloride that has not been so changed. The light does not effect the decomposition any more than opening the door will fill a church: it only makes it possible. But the "development" of a platinum print is entirely different. The substance that takes away the chlorine from the platinum is the ferrous exalate produced by exposure to light. This, in the "development" of the print, produces its full effect and without discrimination. It does not therefore in this case perform the functions of a developer, but is simply, in chemical language, a reducer. liquid that is called the "developer" simply enables or obliges this ferrous oxalate to act on the platinum The expressions "developer" and "development" must therefore not be in any way associated or confused with the same words when applied to the development of an exposed gelatine plate.

"Development." The only function of the developer in platinum printing is to cause the ferrous oxalate produced by the exposure to reduce the platinum salt, taking away its chlorine and leaving metallic platinum. Ferrous oxalate, which is not soluble in water, easily dissolves in a solution of potassium oxalate, and is always so dissolved when it is to be used as a developer for negatives.

It was natural therefore that a solution of potassium oxalate should have been the first developer used for platinum prints, and it is doubtful whether any substance is superior to it, especially when the development is to be done hot. But experience has shown that it is far from being the only effective substance. Certain alkaline phosphates work well, and it is very usual to employ a mixture of potassium oxalate and phosphate. The difference in the final print, due to the use of different substances for effecting the development, are not great, and are probably due to a difference in the rate with which they act. Water alone gives a very poor result, dissolving away the salts from the paper before the ferrous exalate has had time to produce its effect, and doubtless the fact that it is not a solvent of ferrous oxalate is a further reason for its ineffectiveness.

Development may be done either Development hot or cold. Hot development tends Hot or Cold. to softness; that is, it gets the full effect of the exposure. The deposition of the platinum takes place so rapidly that none of the ferrous oxalate or platinum salt has time to get washed away. With cold development a part of the exposure effect is lost, and as the loss is more marked in the thin parts of the image—that is, the high-lights—than in the denser parts, cold development tends to brilliancy, hardness, and even underexposure effects. The difference in colour of the image that results from the temperature of development is referred to afterwards.

As it is only the iron salt, and not the platinum salt, that is affected by exposure to light, it is quite possible to coat the paper with the iron salt only, expose this to light, and to put the platinum salt into the developer. Mr. Willis's first cold-bath process was of this nature, and it yielded very brilliant results; but the greater amount of platinum necessary and other drawbacks have led to this process being superseded.

Fixing.

A platinum print requires no "fixing" in the proper sense of this word.

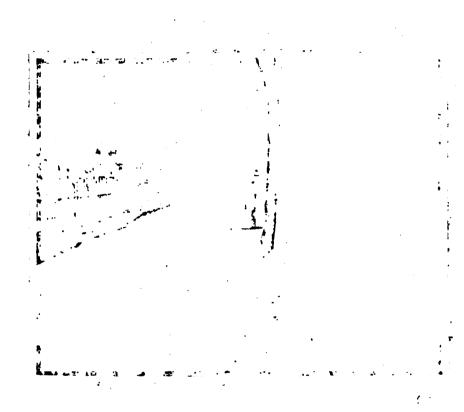
After development it only remains to

get rid of the salts that may remain in the paper in short, to wash them away. But as iron compounds are present, it is better to clear the print first with dilute acid, especially if the water to be used is hard. Practically it is exceedingly important to get the print clean by means of acid, for iron is always difficult to remove from paper, and a little acid facilitates its removal by keeping it in solution.

A printing-out platinum paper— Printing-out. that is, one in which the platinum is deposited during the exposure to light—may be prepared by using a compound of ferric oxalate with an alkaline oxalate in the preparation of the paper, instead of the usual compound of ferric oxalate with oxalic acid. Then the ferrous oxalate produced is in the immediate presence of its solvent. the alkaline oxalate, and it acts on the platinum salt as soon as it is produced, provided the paper is damp enough. But good prints can be so obtained only by accident, for there is no method of ascertaining whether the print is in the proper condition of dampness. It must not be damp to the touch. If the paper is too dry, the print will become darker directly the washing is begun, because the wetting of it will enable the ferrous oxalate to act fully.

It is possible to vary the colour of The Sepia the image in a platinum print Image. within certain limits. arily produced, especially by cold development, the image is black or grey. Hot development often gives a warmer black. If a minute quantity of mercuric chloride or cupric chloride is added to the solution with which the paper is coated, the colour produced by hot development will be warmer still. This is the principle of the preparation of sepia platinum prints. Now ferrous oxalate (produced by exposure) is a very powerful reducer, and it has been suggested that it may give a reduction product from the mercury or copper salt, and that so the image in these cases does not consist of pure platinum. But this idea is founded on supposition. and can, I think, be easily disproved.

In order to get a warm colour the particles must be in a finer state of division than in the black or



grey state. It is only necessary to raise the temperature of the developer to make a perceptible difference in this direction. The hot solution works more quickly, and perhaps all the particles have not time to coalesce into the black form. When the mercury or copper salt is added, doubtless the deposit is finer still. That neither of these base metals remains in the image is shewn by the following facts. A very minute amount will produce the effect: no reduction product of their salts can exist in the presence of the platinum salt, they at once take chlorine from the platinum salt and give the equivalent of metallic platinum; the resulting compound of mercury or copper is easily soluble in water or weak acid; the sepia image is not affected by chemical reagents as it would be if it contained either mercury or copper or their compounds; and either mercury or copper chloride will give the same colour in the image though their compounds and the metals themselves are of different colours.

By adding mercuric chloride to a hot developer a similar warming of the colour of the image results, but obviously more must be added, as only a small part of the developer comes into contact with the print during development. The mercury salt may be added in reasonable quantity to a developer used cold without producing much effect, presumably because of the slow action of the developer. If a large quantity is added the results become irregular, and probably the image is not pure, for it is liable to change. When a large quantity of the mercury salt is used, it is very likely that there is not sufficient platinum salt in the paper for their reduction products to completely react with, and this probably is the reason of the observed results. If mercury citrate is added in considerable quantity to the solution with which the paper is coated, a satisfactory sepia image is stated to be produced even by cold development, but whether the image so produced consists of pure platinum is open to question.

Presence of Iron.

The platinum print when finished consists theoretically of a pure platinum image supported on clean paper. But when a solution of an iron salt is put

upon paper it is practically impossible to wash it thoroughly away. As a matter of fact platinum prints contain a little iron salt or compound associated with the platinum, and the amount of it will vary according to the care with which the print has been prepared. If properly cleared and washed, the amount will be exceedingly minute: if carelessly finished it will still be small but more appreciable. The quantity of iron left in the print by the most careless operator would, I believe, be quite without effect on the permanency of the print. But such a carelessly made print, if subjected to sulphuretted hydrogen, or in general to such circumstances that cause silver prints to fade, will turn to an unpleasant yellowish tint reminding one very much of a faded silver print.

The important point to notice is Discoloured that this is an effect of the iron. Prints. and the platinum is not affected. By treating such a changed print with a bath of weak hydrochloric acid containing a little free chlorine, it is thoroughly restored to its original It will be observed that both the acid and the chlorine are of an attacking or solvent character; they can only remove matter from the image, they cannot add to it. The restoration is, therefore, of exactly the opposite character to any process that may be suitable for the restoration of a faded silver print. The change in the platinum print is due to extraneous matter, and the restoration consists in the removal of it by vigorous reagents. In a faded silver print the silver or the silver compound, that is, the image itself, is affected, and if the changed material were removed there would be little if any image left.

Precautions. It is easy to formulate the directions in which care should be exercised to prevent such a change in a platinum print. The clearing with the acid should be thoroughly done and the subsequent washing not unduly curtailed, but no amount of washing with water will take the place of a thorough clearing with acid. Then the print should be mounted on a decent board, not a board made of any rubbish as

some are, but one that might be fairly used for a silver print. A platinum print so prepared is, I believe, the most permanent of all photographs, not excluding enamels.

Some people are not satisfied with Toning. a simple platinum print, but desire to change its colour. There is only one way of doing this, and that is by adding something to it. Such a production is, therefore, no longer a platinum print although it might be perhaps called a platinotype print. The image of a platinum print may be added to in two ways, that is, either the platinum itself or the minute residue of iron may be utilized to bring about the addition. platinum acts in a physical or mechanical way, for there is no method known by which the platinum in a print can be caused to enter into chemical combination with anything, except indeed by such vigorous means as would destroy the paper. But

the iron compound acts chemically.

If any solution can be prepared that is on the verge of giving a solid deposit, and if such a solution is put upon a platinum print, the disturbing influence of the metallic platinum will often bring about the deposition, and the solid deposited in any part will be fairly proportional to the quantity of platinum in that part. The deposition of gold by Dolland's process is a case of this kind. Gold can be deposited of either a blue or red colour according to the size of the particles. In Dolland's process the intensified image is of a colder colour, a more blue black, than the original, hence it appears that the gold is in the condition in which it reflects blue light. Silver can be similarly deposited from suitable solutions. The reddish brown uranium ferrocyanide may be deposited from a mixture of a uranium salt and potassium ferricyanide. In this case it is not very clear as to what effects the reduction of the ferricyanide. The light and the paper may be the active agents, for the ferricvanide when exposed to light in the presence of many kinds of organic matter is readily reduced to ferrocyanide.

In the catechu process of toning introduced by Mr. Packham, it is the residual iron compound that

combines with the toning material to produce the added colour. Tannic acid, gallic acid, and such substances give similar results. Any modification of development or subsequent treatment that tends to fix rather more than the usual small quantity of iron compound in the print, will tend to facilitate

the toning by such methods.

All prints of a compound nature such as those just referred to, cannot be properly called platinum prints. As a chain is no stronger than its weakest link, their stability is no greater than that of their most changeable constituent. A uranium-toned print will not stand much washing with common water, as this will dissolve away the uranium compound. It may be suggested that a silver print is often toned with gold and is yet called a silver print. But in this case, the added material is less liable to change than the substance of the original image, the print therefore may be better than its name would indicate. But whatever is added to platinum, with the exception perhaps of gold, is much less stable than the platinum itself. In describing such prints, the only unequivocal way is to state just what they are.



Platinotypes as Window Transparencies.—For this purpose a thin paper should be chosen and a fully printed image obtained. The finished print is then rendered translucent by coating back and front with good paper varnish or Canada balsam dissolved in benzole in the proportion of 1 part balsam to 2 parts solvent. The print is allowed to dry and then fastened between two thin sheets of glass by means of gummed tape such as is employed in the making of passe-partouts.

Platinotypes for Decorative Purposes, e.g., wood panels. The wood is coated with size, allowed to dry, and again coated. The print is then fixed to the wood by means of a thin hot coat of pure glue, allowed to dry and then coated with artists' paper varnish.



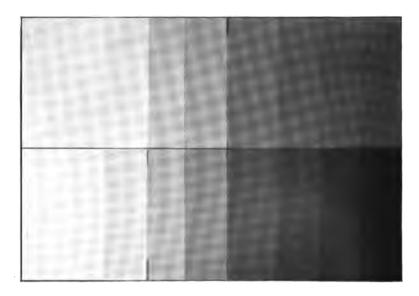




Fig 27.

THE TIMBER TEAM.

DEVELOPED PLATINUM PRINT.

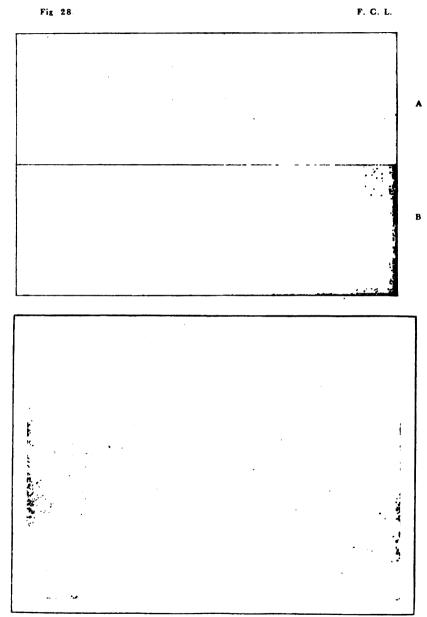


Fig. 29.

THE TIMBER TEAM.

F. C. L.

UNDEVELOPED PLATINUM PRINT.

Miscellaneous Hints.

By THE EDITOR.

Reduction.—At present there is no known method of reducing, *i.e.*, dissolving and removing the platinum image of a print without at the same time acting in a harmful if not destructive manner upon the paper.

Intensification.—Platinum prints may be intensified, i.e., added to by various processes. Gold, silver, uranium, etc., may be caused to adhere more or less firmly to the platinum image. This addition is usually accompanied by a change of colour; hence the so-called "toning" of platinum prints. In general it is a condition of success that the print to be treated must have been thoroughly freed from iron salts. Some workers think that a freshly made and washed print tones or intensifies more readily than one which has been dried after washing and before after-treatment. By intensification and subsequent toning, one may obtain a vigorous contrast print from a somewhat weak negative.

Silver Intensification.—Distilled water, 13 ozs.; pyrogallic acid, 10 grs.; glacial acetic acid, 50-60 drops. Flood the print with this for a minute or two, then return to graduate and add 10 or 12 drops of a 10 per cent. solution of silver nitrate. If this does not give the required result a second edition of 10 to 12 drops of silver nitrate solution may be made. By this means silver is deposited on the platinum. This supplementary silver image may subsequently be toned with gold or platinum in the way a P.O.P. or other silver print is toned.

The drawback to this process is the tendency to obtain a somewhat coarse-grained effect. Care is

required to avoid staining the paper.

(1) Water, 1 oz.; ferrous sulphate, 5 grs.; acetic acid, 40 drops. Immerse the print for a minute or so, then return to the graduate and add 2 or 3 drops of a 10 per cent. solution of silver nitrate.

(2) A—Water, 1 oz., pyro, 2 grs.; citric acid, 20 grs.; B—Water, 1 oz.; citric acid, 20 grs.; hydro-kinone, 2 grs. C—Water, 1 oz.; silver nitrate, 5 grs. Take 25 parts A, 25 parts B, and 1 part C.

Platinum Intensification (Hübl's Process).

(1) Prepare 10 per cent. solutions of sodium formate and platinum bichloride. Take 5 drms. sodium solution, dilute with 12 to 20 ozs. water; add 1 drm. platinum solution. Intensification is somewhat slow. Note that the platinum is added just before the solution is applied to the print, which should have previously been cleared and well washed. Intensification by this process may occupy 10 to 30 minutes according to the degree of dilution, temperature, etc.

(2) Water, 8 oz.; soda formate, 6 grs.; platinum

perchloride, 1 gr.

(3) Water, 1 oz.; phosphoric acid, 15 minims; potass. chloroplatinite, 1 gr. Gives warm black tones.

Platinum Intensification (Vogel's Process).—Of a normal ferrous oxalate developer take ½ oz.; dilute with 5 ozs. distilled water. Add 12 to 20 drops of a 10 per cent. solution of potassium chloroplatinite. This is used after the print has been cleared and well washed.

Platinum Intensification (Miethe's Process).—Prepare a cold saturated solution of potass. oxalate (i.e., approx. 33 per cent.); also a 30 per cent. solution of ferrous sulphate in cold water and a 10 per cent. solution of potass. bromide. Take 5 ozs. of oxalate solution; to this add 1 oz. of iron solution (and not vice-versa) and add 25 minims bromide solution. Apply this to the print immediately after development and before clearing. Then clear and wash in the usual way.

Gold Intensification (Dolland's Process).—Lay the well-washed print on a sheet of stout glass. Surface dry by laying a sheet of clean blotting paper over it for a few seconds. Now apply an even thin layer of glycerine. Then rapidly brush over the print a 1 per cent. solution of gold chloride. This process is useful for improving dull or rusty prints, but is apt to stain the paper a violet or pink tinge. After intensification the print is well washed and then

immersed in a metol-soda or metol-potash developer (*Vide* pp. 36-37, *Practical Photographer*, No. 6.). Finally it is well washed once more.

(1) Water, 5 oz.; lead nitrate, 35 grs.; amm. sulphocyanide, 100 grs.; gold chloride, 1 gr. Gives a bluish-black tone.

Uranium Toning and Intensification.—(1) Water, 10 oz.; uranium nitrate, 5 gr.; glacial acetic acid, 10 min.; potass. ferricyanide, 5 gr.; ammon. sulphocyanide, 25 gr. After toning wash in acidulated water, e.g., water, 20 oz.; acetic acid, 20 min. This bath yields a range of colours from warm black and chocolate to a sienna red colour. (2) Water, 6 oz.; uranium nitrate or acetate, 6 gr.; potass. ferricyanide, 6 gr.; glacial acetic acid, 3 drm.; soda sulphite, 6 gr. (3) Water, 1 oz.; potass. ferricyanide, 2 gr.; ammon. citrate of iron, 1 gr.; uranium nitrate, 1 gr.; acetic acid, 50 min. Redblack tones.

Iron Toning.—Water, 10 oz.; ammonia iron alum, 4 gr.; hydrochloric acid, 4 min.; potass. ferricyanide, 2 gr.; ammonium sulphocyanide, 20 gr. This yields blue-blacks and blues with a somewhat greenish tendency. (2) Water, 4 oz.; ammonia citrate of iron, 10 gr.; potass. ferricyanide, 10 gr.; nitric acid, 5 drops.

Green Tones after Uranium.—The uranium-toned print is always to be washed in water that is slightly acid or the "tone" will be dissolved away. It may be turned to an olive green colour by a weak solution of chloride of iron—a few grains per oz. The print changes to grey and then to olive green. It is again washed in dilute acid water.

Green or Bive Prints.—Saturated solution of potass. oxalate, 8 parts; ten per cent. solution of potass. ferricyanide, 3 parts; glycerine, 15 parts; water, 30 parts. Apply with a brush after the usual glycerine method described on page 00. At first the prints have a green colour, but this changes to blue in the acid bath. Prolonged immersion in the acid bath should be avoided. (See also uranium toning).

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Border Printing-A Further Modification.-In Fig. 3 we show the effect of a modification of the various forms of border printing described at length in No. 1 of the present series of The Practical Photographer, pp. 30-33. We may therefore assume the reader to be familiar with these pages. Our first step is to cut out a mark with centre opening showing the picture part. This is put on the glass side of our negative. The part of the mark removed from the centre is attached to a sheet of clear glass placed in register so as to protect the picture while the border is printing. Here comes the modification. Over this centre mark on the clear glass is fixed a second piece of semi-opaque paper, projecting, say, 1 or 1-inch top and sides and 1 or 1 at bottom. After the picture has been printed with surrounding parts protected it is transferred to the second frame. But instead of adjusting it in exact register an overlap of say 1/2 inch is allowed at the top and one side. On printing the border we get three things at one operation. First, the overlap of 18 at top, and one side is kept nearly quite white. Next, a light tint inner border is printed through the semi-transparent white paper. Thirdly, a black outer tint is printed through the clear glass. nearly white is band at top and one side give the suggestion of an embossed mount as in Fig 3. The relative strength of the inner grey and outer black borders can be modified by using papers of various degrees of translucency. That used for the accompanying example was a bit of "white demy" as used by chemists to put round medicine bottles. Care must be taken to select a piece even in grain and free from spots.

Clearing.—Sepia prints if left for a considerable time in the clearing bath are likely to part with some of their pristine warmth of colour and dry a dull warm black. Sepia prints should be cleared in rather weaker strength of acid, viz., water 100 parts, hydrochloric acid 1 part. For ordinary black and white prints the normal proportion is acid 1 part, water 60 parts. Citric acid 1 part, water 20 parts, may be used in place of hydrochloric acid. This has less tendency to destroy or rot the paper.

But it involves considerably more cost.

Judging Printing.—Correct exposure is of supreme importance for first-class work. After a little practice, with careful observation, the difficulty experienced by every beginner very soon vanishes. To aid the beginner we have made some examples which will greatly smooth his first steps. A "strip negative" was made by giving successive exposures to different parts. We thus have a series of steps of density ranging from practically clear glass up to a density which would just show a visible tint by the time the clear glass was printed full dark with P.O.P. It therefore represents the density range of a good P.O.P. negative. Putting a piece of platinotye paper in contact, it was printed until we could just see the junction line between the fourth and fifth steps. This presented the appearance of Fig. 28A. A pencil mark was made at this junction.

Half the negative was now covered with a piece of card and printing continued until we could just see the junction line between steps 6 and 7, vids

Fig. 28B.

The print was then developed, and gave us the result shown in Figs. 28A and 28B. Comparing the developed and undeveloped print, we see that development has in each case brought out just two more strips than we could see in the printing Here then is the key of the whole situation. In printing a negative we must select some one part, which, when just visible, will on development give two more steps of tone. To aid in this judgment it is useful to find some such 3rd density step, which comes close up to the protecting rebate of the printing frame, because we can thus easily see the slightest change of tint of printing when it is next to a strip of unaltered paper. In Fig. 27 we have an ordinary "landscape with figures" subject. In Fig. 29 we have the appearance of the print as it leaves the printing frame, with its clear margin of protected (unaltered) paper all round it.

Cloud Printing.—The general method of cloud printing has been already described in No. 1 and No. 3 of the present series. What has there been said can very readily be adapted to platinum

printing, which in this respect is easier than bromide printing, because we can see our landscape portion more or less clearly. But the difficulty is knowing how far to carry the cloud printing. With bromide printing it is a matter of so many seconds at such a distance from an artificial light. With platinum printing we usually employ daylight, which may vary in quality. Moreover the exposure may be minutes rather than seconds.

In Figs. 20, 22, and 23, we have the result of printing a piece of platinum paper side by side with a piece of P.O.P. When the platinum paper is correctly exposed, Fig. 20, the P.O.P. shows us a picture, Fig. 23, which is just a shade lighter than we desire our finished platinum to resemble Fig. 22.

If now we employ an actinometer the matter is quite simple. We proceed thus. Put a piece of P.O.P. under the cloud negative and at the same time a bit of P.O.P. in our actinometer. Put out both to print side by side. Examine the cloud print from time to time until the picture is just a trifle too light for finished results. Then withdraw the actinometer and note the highest number visible. Suppose this to be 5. Now in one corner of our cloud negative write with pencil P. 5. Then to print this cloud negative in platinum at any time we have only to expose it along with P.O.P. in our actinometer until we can again just read the fig. 5. By this time our platinum cloud will be correctly exposed and ready for developing.

Thus we see that although an actinometer is not absolutely essential, yet it is a great help in platinum, carbon, gum bichromate, and other like processes wherein the image is but partially visible.

Some workers instead of using an actinometer place a narrow strip of P.O.P. along the edge of the negative and judge printing by watching this strip. This plan serves only when a part of the negative is being used for the platinum print.

Printing in direct sunlight gives less contrast, i.e.

flatter prints than printing in diffused light.

Yellow negatives may be made to yield brilliant prints by covering the printing frame with bluegreen glass or blue sheet-gelatine.

Thin blue-grey or blue-black negatives will

similarly give more plucky results if they are

printed under pale yellow glass.

Over-exposed prints should be developed on a normal developer diluted with 3 to 6 times its volume of water.

Printing may be done by means of electric are light or magnesium burnt in oxygen. But as these means are not usually employed by the amateur they are not discussed in detail.

Enlarging onto platinum has also been done by electric light by a solar enlarging camera, but here again these methods do not usually fall in with

amateur procedure.

Control Modifications.—Hot bath paper, after exposure, may be allowed to become slightly damp by absorbing moisture from the air. This tends to lengthen the scale of tones, and at the same time changes the ordinary black image to a slightly warm black colour. These effects are assisted by the use of a rather cool developer, say 90-100°F., and by the addition of an equal quantity of water to the normal oxalate solution, and the addition of enough oxalic acid to show a marked acid reaction. The print should be fully but not excessively exposed. To counteract a tendency to general fog, a small quantity of potassium chloride may be added, thus:

", potass. chloride ... 10-10 ,,
This procedure is useful for dense strong contrast

negatives.

For normal conditions—i.e., developing the paper while dry and at once after printing, the contrasts may be reduced—i.e., a flat print obtained by the use of a normal oxalate developer strongly acidified with oxalic acid.

Sepia paper will usually be found to vary somewhat in colour with the nature and temperature of the developer. Thus raising the temperature or increasing the proportion of oxalic acid tends to yield warmer colours.

The presence of damp in the paper also affects the contrast range. Thus a damp paper gives reduced contrasts and is suitable for dense nega-

tives, while a dry paper gives brighter results from thin and weak negatives.

Sepia paper does not seem to keep in good condition quite so long as the ordinary (black and

white) paper.

Control of Contrast.—If a negative yields too strong contrasts, as often is the case with architectural interiors, this contrast may be reduced by a preliminary and brief treatment of the print in a dilute alkaline bath.

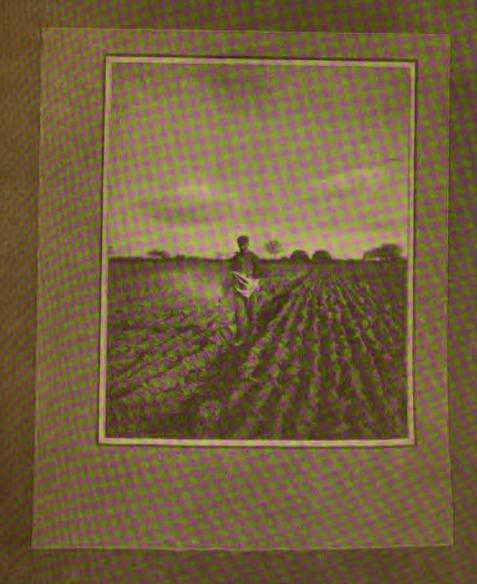
A ten grain per ounce solution of ordinary washing soda is prepared in one dish, while the normal developer is at hand in a second dish. The fully printed proof is taken from the printing frame and floated for 5, 10 or 20 seconds on the soda bath, and then transferred to the normal developer. The length of time on the soda bath depends upon the degree of contrast required. If longer on the alkaline solution (within reasonable limits) the greater the degree of contrast reduction. This alkaline treatment, of course, has the effect of slightly warming the tone or colour of image. It is also claimed that it prevents bronzing of the shadows, due to solarisation.

Local Development by the glycerine method.— Workers of small size prints will find penny egg cups convenient. For larger sizes, small jam pots

may be used.

Any brushes used should not be bound in metal. "Dabbers" in quill are convenient. Useful brushes for this purpose can be easily made by tying a tuft of cotton wool to the end of a short glass rod, using a few turns of white cotton for this purpose. Four cups are convenient. The first contains normal developer; the second, equal parts of developer and glycerine; the third, glycerine 10 parts, developer 1 part; the last, pure glycerine.

Development should be carried on in plenty of light of a safe kind. This may be gas or lamp light. If daylight be used, the entire window should be covered by an orange paper screen in a light wooden frame fitting the window frame, and held by turn-buttons at each side. A sheet of stout glass is required, of size an inch or so larger than the print (thus for a 5×4 print the glass may



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FIRE-LIGHT STUDY. Fig. 33.

W. G. Hill.



THE CRYPT, DURHAM.

conveniently be 7×6). This glass is lightly smeared over with glycerine. The print laid (back down) adheres to the glycerine. Then with a brush or wool tuft the face of the print is thinly and evenly coated with glycerine and allowed to penetrate the paper for a few minutes. Then the unabsorbed glycerine is removed by laying a sheet of blotting paper over the print and lightly pressing into Next those parts of the print that are to be developed are coated with the third mixture (10 to 1). Presently this brings out a faint image. We now apply to the parts next darker the second mixture, i.e., equal parts glycerine and developer. If this does not bring the darker parts sufficiently strong, then recourse must be had to the pure developer, applied to those parts which require most development.

Before applying any one mixture after another over the same part of the print, it is well to remove the first mixture with blotting paper. But where soft edges are required—e.g., clouds, etc.—the two

may be blended on the print.

Brush development calls for very light handling, lest the surface of the print be damaged by abrasion.

The more glycerine in the mixture the slower the developer acts. Therefore, some judgment as to rate of action must be exercised. One should bear in mind the simile of a race in which the slower runners are started at such intervals that

all may arrive at the goal post together.

After development the print is fixed or cleared in the usual way, but as the pores of the paper are saturated with glycerine, a little extra time must be allowed for the clearing baths to do their work. About ten minutes in each of the three clearing baths will be a suitable time with the usual precautions as to allowing plenty of clearing bath and guarding against any two prints being in contact.

In Fig. 10 we have an example of brush development. On our left we have the effect of a softened edge obtained by constant attention with a mixture containing plenty of glycerine. On our right is a sharp edge obtained by fairly strong developer to a print whereof the surface had been partly dried

by blotting paper after the application of glycerine. Each method has its use at times.

Local Development by the glycerine and brush method may be used with those developers that give a control of tone or colour. Thus the face of a portrait may be developed a warm tone by means of a mercurial developer, while the drapery of the figure or background may be developed with potass. oxalate only, and so obtain a cold black colour.

Surface Treatment.—This may be local or general; i.e., a part, or the whole print. To deal with

general treatment first.

(a). Cold water, 1 oz., Gelatine, 20 grains. Soak for an hour or so, then gently warm the containing vessel until the gelatine is thoroughly melted. Soak the dry print in this for a few minutes. Remove, drain, and pin up to dry. This will slightly brighten the print and impart a certain degree of gloss.

(b). In place of gelatine use dried size or

isinglass.

(c). Artists' liquid size diluted with two or three times its bulk of warm water, may be applied with a flat soft brush.

(d). One ounce of gum arabic in four ounces of

water may be applied in the same way.

(e). Artists' Fixatif may be applied with a spray or diffuser.

(f). Artists' meguilp may be brushed on the print.

(g). Mastic varnish, 1 part, alcohol, 8 to 10 parts. (h). White wax, 1 dram, gum elemi, 1 dram; melt together in a cup, stir well and add 5 drops oil of spike or lavender. Then add slowly, stirring well, 2 drams alcohol, and 1 dram benzole. This forms an encaustic paste which is lightly applied to the print with a tuft of clean cotton wool, and then gently rubbed into the paper.

Others have recommended Soehnée varnish, crystal varnish, white spirit varnish, vaseline, etc.

Obviously several of the above preparations may be applied locally with a brush.

Another plan to brighten certain parts of small prints is by burnishing from the back. Holding up the print to the light, trace on the back with a pencil the part to be brightened. Now lay the print face down on a sheet of stout glass. Cover the back of the print with a thin sheet of transparent celluloid, e.g., an old film, then with an agate burnisher or end of bone tooth brush handle, rub the part within the pencil outline. As this flattens the paper and converts a rough into a smoother surface by enforced contact with the

glass the part is brightened.

Glossy Platinotypes.—For certain scientific and other purposes, it is desirable to show all minute details. The following procedure is quite simple in practice. Make a solution of gelatine of strength 10 to 12 grains per oz. of water, and keep this just luke-warm. Soak the prints in this for some little time. Meanwhile clean a sheet of plate glass very thoroughly. Dry it and dust it with powdered tale, then polish with a dry silk duster. coat this glass with enamel collodion. As soon as the collodion is "set," then wash under a gentle stream of water until the surface loses its greasy appearance. Now immerse the coated plate in the dish of gelatine solution. Bring a print face down onto the collodion surface; withdraw glass and print in contact. Drain, and pass a roller squeegee over the print to expel all air bells, and obtain good contact; then set up to dry. When quite dry, the point of a knife is inserted under one corner of the print, when it will then readily leave the glass with an enamelled surface.

Points to observe carefully.

(a). The glass must be free from scratches and

quite clean.

(b). Dust the talc powder freely on to the glass, and use a light circular motion in polishing. An old silk handkerchief is excellent for this purpose.

(c). Do not attempt to strip until the print is

thoroughly dry.

Ename! Collodion.—Pyroxyline, 10 grs.; alcohol, 1 oz.; ether, 1 oz. Keep well corked and away from any naked light (gas flame, etc.).

Temperature of Development.—With cold bath paper this may range from 50°F. to 150°F. At 50° the colour or tone is a cold grey-black tending towards blue. With the higher temperature the colour is a warm black tending towards brown. In general, cold bath paper is best treated between 60°-70°F. The hot bath paper may range from 80° or 90° to 200°. But the most useful temperature is 120°-150°F. Under-exposure may be slightly compensated for by raising the temperature of the developer.

An over-exposed print is best developed by a brief immersion in or floating on the developer. This brief development gives cool grey colours with

black paper.

Mercurial Developer for warm tones.

(1) Water, 1 oz.; potass. oxalate, 65 grs.; mercuric chloride, 6 grs.; potass. citrate, 10 grs.; citric acid, 16 grs.

(2) Water, 4 ozs.; potass. oxalate, 300 grs.; potass. citrate, 45 grs.; citric acid, 70 grs.; mercuric

chloride, 25 grs.

(3) A. Water, 15 ozs.; potass. oxalate, 2 ozs.

B. Water, 15 ozs.; potass. citrate, 3 drms.; citric acid, ½ oz.; mercuric chloride, 100 grs.

For a warm sepia use equal parts of A and B.

For warmer tones increase the relative propor-

tion of B to A.

These developers should be used freshly made or kept in the dark, for a precipitate is likely to be thrown down. This should not be removed from the stock bottle. No. (3) or preferably (1) may be used. But in either case to each ounce of developer add ½ to 1 dram of a saturated solution of oxalic acid.

Developer for warm tones.

(4) Water, 20 ozs.; potass. oxalate, 2 ozs.; potass. phosphate, ½ oz.; potass. chloride, 1½ drms.; citric acid, 3 drms.; mercuric chloride, 2½ grs. Use at temperature 170°—180° F.

(5) Water, 16 ozs.; potass. oxalate, 3 ozs.; copper chloride, 62 grs.; mercuric chloride, 2 drams;

lead acetate, 8 grs.

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Heatuntil the precipitate is dissolved. Use at 175°F• After fixing and washing rinse in dilute ammonia.

The addition of a small quantity of chlorate of potassium to a normal potassium oxalate developer increases contrasts in the print. This effect is more marked with cold than with hot development. The addition of a small quantity of soda carbonate tends to give slightly warmer colours.

Developer.

- (1) Water, 1000 parts (10 ozs.); potass. oxalate, 100 parts (1 oz.); potass. or soda phosphate, 50 parts (½ oz.).
- (2) To increase contrast, take of normal developer 100 parts, and add 1 to 5 parts of a one per cent. solution of potass. bichromate. Thus of normal developer take 20 ozs. and add from 1 to 5 grs. of potass. bichromate.
- (3) A cold saturated solution of potass. oxalate (roughly 1 in 3) may be used or the saturated solution may be diluted with an equal volume of water.
- (4) Water, 240 parts; potass. oxalate, 32 parts; potass. phosphate, 8 parts; potass. sulphate, 1 part. It is claimed for this developer that it will give a vigorous print from a flat negative if it be printed in a subdued light.

Print-out Process. The paper should be very slightly damp before placing in the printing frame. But it must not be too damp or the image will be lost in fog before the details are printed. Pin the paper to the inside of the lid of a cardboard box in which is placed a saucer of water at 100° F. In one or two minutes the paper will be sufficiently damp. Printing may be done in full sunlight and takes a considerable time. The image should be right out as there is little or no loss in the subsequent operation which consists of holding in the steam of boiling water from a kettle. It is then passed through two acid baths of hydrochloric acid of the usual strength. Negatives for this process should previously be varnished. Digitized by GOOGLE

Dampness in the atmosphere in which the paper is handled or kept has a marked influence on the print. It causes a loss of sensitiveness, inducing general fog. This greys both the high-lights and shadows, thus altering the scale at both ends. For the most brilliant results freshly-made paper, taken direct from the sealed tube, should be used, the negative, printing frame and pressure pad well dried. The print should be developed as soon as possible after printing.

In place of the usual rubber sheet placed behind the platinum paper in the printing frame, we may use a piece of American cloth, or an old film negative or sheet of celluloid or a couple of layers of waterproof paper such as is used in the office copying press, or waxed tissue paper, or oil silk.

To Clean Platinotype Prints.—Prints on unglazed paper of rough surface are apt to become soiled and degraded by dust particles collecting in the depressions of the paper. Stretch a sheet of fine muslin over the mouth of a tub or bucket. Lay the print face down on the muslin. Pour hot water from a jug over the back of the print. Or, dissolve a pinch of alum in a cupful of cold water. Then add household flour enough to make a sticky paste. Lay the print face upwards on a sheet of glass, apply the paste to the surface with a soft brush and spread it well with the fingers. Then wash off under a gentle spray of cold water. The sticky paste carries away the dust and dirt along with it. (Both the above methods are applicable to the cleaning of engravings, etchings, etc.).

Mellowing or Tinting Prints.—Platinotype prints may often be improved by slightly tinting the paper to a colour approaching that of a mellow old engraving; (a) a strong infusion of tea, or (b) coffee may be used; (c) dipping in a 1% solution of potass. bichromate, rinsing lightly, dry, and exposing to light, imparts a pale yellow brown tinge to the paper.

Infusions of tea or coffee are better used freshly made, but may be kept for some time if a few

grains of salicylic acid be added.

Packham's Toning Process.—Stock solution: Water, 5 ozs.; catechu (or "Cutch") 120 grs. Boil in glass or porcelain vessel for about five minutes. Allow to cool. Add 1 oz. alcohol.

Toning Bath: Stock solution, 20-30 min.; water, 20 ozs. Heat to 130°-150° F. Toning takes about ½ hour at this temperature. If used at 65° or 70°, the process may occupy two or three hours.

If the high-lights become stained, immerse in water, 6 ozs., soda carbonate, 1 drm., castile soap, ½ drm.

The best kind of catechu for this purpose is known as "Bombay" or "Bengal" Cutch. Price about 1/- per lb.

The presence of a trace of iron seems to favour this process. Prints that have been thoroughly cleared are toned in this bath with some difficulty.

The following developer is said to produce prints which tone readily by this process: Water, 15 ozs.: potass. oxalate, 7 ozs. Dissolve by heating and add pure West Indian sugar, 3 drms. Develop prints at 120° F. Prints toned by this process are said to slowly fade if exposed to strong day-light. (It is also said that soap, soda, or sunshine will cause fading of the tone obtained by this process.) If such prints turn green, it is probably the result of the use of an acid mountant. The colour can be restored by the use of a very weak solution of soda A dilute acid bath will remove a concarbonate. siderable portion of the tone or colour added by this process, but this seems to return again if the prints are passed through the soap bath.

The bath during use will probably become discoloured. This may to some extent be avoided by adding to it 2 grains of castile soap or a like quantity of potass. oxalate. But these additions give also a warmer colour.

For this process a fully-exposed and well-developed print is desirable as the subsequent change of colour tends to make the print seem somewhat lighter than before.

Mallman's Silver-Platinum Process.—(A) Take 1 part arrowroot, rub with 10 parts water in a mortar to a smooth cream, add 75 parts boiling water, then add 15 parts ferric oxalate. Stir well and filter through muslin while yet warm. This solution is light sensitive, and should be prepared by feeble gas-light. (B) Silver nitrate, 1 part; water, 6 parts.

Take 4 parts A and add 1 part B, and evenly coat the paper. A 30×20 sheet will take about 1 drm. of mixture; dry quickly over a gas stove protected by a sheet of iron. Print in the usual way as though the paper were ordinary platinotype. Prepare the

developer thus:—

(C) Water, 6 parts; potass. oxalate, 1 part.
(D) Water, 100 parts; potass. bichromate, 2 parts.

(E) Nitric acid pure.

For normal contrasts add 2 or 3 drops of D to each ounce of C.

For weak contrast negatives take 2 drops of

nitric acid per oz. C.

The picture comes up quickly, and is of a redbrown colour. The print is then washed in dilute nitric acid, 2 drops acid per oz. water. The print is then platinum-toned in water, 4 ozs., strong nitric acid, 4 drops, potass. chloroplatinite, 3 grs. This changes the image from brown to black.

The print is fixed in an acid hypo-fixing bath, well-washed and dried. This process is cheaper than the ordinary platinum printing methods.

This is not properly a platinum printing process, but really a silver printing process designed for

platinum replacement by toning.

This process is here mentioned as a link which connects direct platinum printing with platinum toning processes.

Caution.—To prevent a gas flame breaking a porcelain dish, interpose a twopenny asbestos stove mat.

Home-Made Platinum Paper.

HE growing popularity of platinum paper has resulted in a great sale of this, the finest of all simple printing materials, but the high cost of the salts of platinum makes the cost necessarily high, and many amateurs hesitate to use it as much as they would like, especially if they are in the habit of making many pictures

to give away. This difficulty will in a measure disappear if one makes one's own paper, and this is not such a hard task as popularly supposed. Of course, some precautions must be observed, but any ordinarily careful person will have no difficulty in successfully making platinum paper by

following the directions about to be given.

The platinum process may be divided into two classes, the direct-printing paper, or Pizzighellitype, and the developing paper. We propose to consider this time the Pizzighellitype, leaving the developing paper for a future occasion. This is the simplest process in the hands of the beginner, and has the advantage over the commercial papers that the image is printed completely out, and hence there is none of the ordinary difficulty in determining ex-

actly when the printing is completed.

We may use any unruled paper of good quality, such as linen ledger, the best grades of writing papers, or any of the drawing papers. In order to prevent the image from the possibility of sinking into the paper, and thus producing a flat picture, we must size the paper before sensitizing it. For this purpose we take one dram of arrowroot and rub it to a paste with a little water and then stir in eight ounces of boiling water, continuing the stirring until a clear solution with no lumps is obtained. Bring the mixture to a boil, if necessary, to effect this result, and then coat the paper while the solution is hot. The paper, previously cut into pieces of the required size, is fastened on a clean board with thumb tacks and the hot solution spread on it with a sponge. It is then gone over with a wide brush or tuft of cotton in both directions in order to equalize the coating, and hung up to dry.

For sensitizing, one prepares the three following solutions:

No. 1.	Potassium chlorplatinite80 Pure water	gr. dr.	20	m.
No. 2.	Sodium ferric oxalate 5 Pure water 11	dr. dr.	8 20	gr. m.
No. 3.	Potassium bichromate 5	gr.		

Solution No. 2 must be kept in a dark-colored bottle in a dark place. It is best to use distilled water for making these solutions if there is any doubt as to the purity of the tap water. For black tones with normal negatives mix of No. 1 one dram; No. 2, one and one-half drams; pure water, one-quarter dram; and No. 3, two drops. For very rough paper, twice as much water may be used. Thin negatives require the use of more of solution No. 3, up to even ten drops, while with very contrasty negatives No. 3

may be entirely omitted.

The previously sized and thoroughly dried paper is fastened on a clean board, and the mixed solutions are spread with a soft bristle brush, which should contain no metal in the fastening. The coating must be done by vellow light or lamplight; then an equalizing brush must be used and the whole surface gone over both ways to make sure that the paper is evenly covered. By the time this is done the paper will appear only slightly moist, and it must now be dried quickly by artificial heat, as a stove or hot-air This drying should consume not more than fifteen minutes at the utmost, and if not done in this time good results will not be obtained. In the summer, when artificial heat is not much used, recourse may be had to the oven of the cook-stove, or a drying chamber may be constructed by putting a piece of sheet iron in place of the bottom of a packing case and suspending the paper from wires inside. Heat is furnished by a gas flame or lamp under the bottom, and if the oven is got well heated before the paper is put in, it will dry promptly. The temperature of drying should not be above 125 degrees F.

When the paper is once thoroughly dry it will keep a very long time if protected from moisture, and for this purpose it must be kept in a well-closed tin box, in which is also placed a lump of fused calcium chloride well wrapped in paper to keep the chemical from coming in contact with the paper. It is preferable not to coat more paper than is

to be used promptly, as the results are somewhat better

with fresh paper.

In printing the paper some moisture is necessary, and about fifteen minutes before use it should be laid in a damp place or placed in a box in the bottom of which is a saucer of water. It will become somewhat limp, and is then in condition to print. Of course, when it is once dampened it must be used, as if not it becomes useless. The paper is considerably less sensitive than the developing paper, and can consequently be printed in direct sunlight with a moderately strong negative with good results. Thin negatives must be printed in the shade, as with the developing paper. Printing is continued until the picture has arrived at the desired tone. The platinum is reduced on the paper if sufficient moisture is present, and the action is completed at once, so that no developing bath is necessary. If the air is very dry printing is continued only until all the details are out, and the picture is then held for some time in the steam of a tea-kettle. Pictures which are under-developed may often be saved by development in a 1.20 potassium oxalate solution.

The fully printed or developed picture is now brought into an acid bath for fixing. This consists of one ounce of hydrochloric acid in eighty ounces of water. The print is left in this bath three to five minutes and then washed thoroughly for twenty minutes in several changes of water. Hang up to dry, or lay out on pure, clean filter or blotting paper.

The platinum process is not adapted for printing pictures in which the reproduction of minute details is essential, nor those in which there is an excessive amount of shadow; but for ordinary, well-modulated negatives it gives results which are comparable to copperplate engravings for beauty.



Bibliography of Books on Platinotype Printing

- ABNEY, SIR W. DE W., and CLARK, LYONEL. Platinotype: Its Preparation and Manipulation. 43/4 x 7/4 in.; pp. 196 and index; diagrams. 1898. Paper, \$1.25. English. An exhaustive and authoritative description of platinotype processes and the making and manipulation of platinum papers. The most comprehensive work available in English.
- CLARK, LYONEL. **Platinum Tening.** 434 x 7 in.; pp. 96. 1900.

 Cloth boards, **50 cents.**English. This work deals with the toning of plain silver prints with platinum, as practiced prior to the introduction of modern print-out papers.
- HINTON, A. HORSLEY. Platinotype Printing. 4½ x 7 in.; pp. 92; frontispiece showing platinotype print before and after development. 1901.

 Cloth boards, 50 cents.
 English. Deals with the subject from the pictorial point of view, but gives practical detail where required.
- PHOTO-MINIATURE, THE, No. 7. Platinotype Processes. 1899. Paper, 25 cents.

 The different varieties of platinum paper. Hot and cold amanipulation; toning platinum prints to sepla, red, brown, blue, etc. Glycerine development, etc. With special frontispiece, showing a print before and after development.
- PHOTO-MINIATURE, THE, NO. 40. Platinotype Modifications. 1902.
 Paper, 25 cents.
 Describing, with abundant formulæ, all the reliable ways of obtaining platinotypes in various colors, glycerine development, uranium toning, gum platinotype, etc., with many examples in facsimile colors.
- STIEGLITZ and KEILEY. The "Camera Notes" Improved Glycerine Process for the Development of Piatinum Prints. 7½ x 11 in.; pp. 12. Illustrated with reproductions in color of prints by the experimenters. Paper, \$1.00. An illustrated monograph reprinted from "Camera Notes," Vol. III., No. 4, noteworthy as the clearest and most satisfactory description of the glycerine method of developing plathotypes, with facsimile examples showing the results secured.
- WARREN, W. J. The Platinotype Process. 4½ x 7 in.; pp. 85 and index; frontispiece showing platinotype print before and after development. 1898. Canvas boards, 50 cents. English. A plain, unvarnished account of the making of platinum prints.

Periodical Articles.

- Perkins, T. Hints on Brush Development of Platinum Prints. Scientific American Supplement. 1898. 45: 18,643.
- Printing-out Platinotype Process. Scientific American Supplement. 1897. 44: 18,208.
- Reinforcing Platinum Prints. Scientific American. 1900. 82:21

The above publications may be procured through

Photo Era Publishing Company

170 Summer Street, Boston, Mass.

Notes and News.

THE following directions for using Eastman's Sepia Paper may be of use to our readers using this form of platinum paper:

Eastman paper is about three times as rapid as blue paper. It should be under rather than over printed, and is developed by washing in plain water. After two or three changes of water, fix five minutes in a solution of hypo, one and one-half grains to the ounce of water, and afterwards wash thoroughly. If not convenient to weigh the hypo, use as much as can be piled on a tencent piece (six grains) with four ounces of water. To secure brilliant prints, paper should be washed immediately after printing. "Immediately" does not mean "in the course of ten or fifteen minutes," but "at once," as the action of the atmosphere, depending somewhat on the degree of humidity, will give the prints a flat and "mealy" look. The best method is to place in a waiting tray of water as soon as the paper is taken from the printing frame. Short fixing gives red tones; longer fixing produces a brown tone.

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"THE ELECT," a postal photo art club, have just favored us with a Catalogue of their first exhibit. From it we learn that they were organized in May, 1903, and their first exhibit was held at Bay View, Michigan, during July and August, 1904, under the auspices of the Bay View University. The membership comprises some well-known names in photographic circles, but is apparently limited to ten. Yet what they lack in numbers they certainly make up in quality, as the work shown in their first exhibit is distinctly above the average and bids fair to lead in this special line of photographic endeavor. We count it a privilege to have been favored with this Catalogue, and extend our best wishes for the future progress and success of "The Elect."

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THE Tenth Annual Convention of the Photographers' Association of Kansas will be held at Topeka September 20-22, inclusive. The officers are Samuel Hirst, president; P. Colville, J. C. Kautz, vice-presidents; B. G. Grondel, treasurer, and P. A. Miller, secretary. After the Convention they will leave on a special train, in a body, for the World's Fair at St. Louis. They will hold a Banquet at Topeka on September 20.

THE Eighth Annual Convention of the Photographers' Association of New England was held in the Mechanics' Building, Boston, August 24 to 26, inclusive. There were addresses by Professor Griffith, of Detroit, Professor Poore, of New York, and Mr. I. Scandlin, of Brooklyn, and a review of the Art Exhibit by Professor F. A. Bement, of New York. The attendance was large, and the general feeling expressed was one of satisfaction with the Convention. The newly-elected president, Chris. Johnson of Hartford, is widely and favorably known throughout New England, having already served in the capacity of vice-president of the Association some years ago.

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THE regard which the Japanese have for American integrity cannot be better illustrated than by this story told by a traveler: There is a duty in Japan on photographic cameras, and this traveler was called upon to pay the stipulated sum.

"I have no Japanese money," he faltered. "I must leave my camera here and call again." "Not at all," replied the official, courteously, "I will lend you the money." The traveler, accustomed only to the civilities of the New York Custom House, states that he came near fainting away. At last he gathered strength to ask: "But what security have you that I will repay you?" "Ah," replied the officer, smiling, "you are an American."— Ex.

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GEORGE H. KETCHAM, of Toledo, Ohio, has offered a prize for the best photographic suggestion for a theatre curtain, the subject to be taken from some place about Toledo. The Toledo Camera Club will work all summer upon this competition.

N. N. N.

Among the various platinum papers sold in the United States the Angelo Sepia Platinum, cold development, is one of the best. It offers a large latitude in development, while printing, the image is more visible, the keeping qualities of the paper are of the best, and, last but not least, it is less expensive. Out of the large number of awards at the recent New England Photographers' Convention held in Boston, more than half were for pictures on Angelo Platinum. Mr. Di Nunzio, the manufacturer, is widely and favorably known to the photographic world for many years, and his success in this line is richly deserved.





VOL. I.

OCTOBER, 1904.

No. 7.

The Pictorial Work of Reginald Craigie.

By THE EDITOR.

M SO

REGINALD CRAIGIE holds the enviable position of Hon. Sec. to that influential company of pictorial photographers known as the Linked Ring. Under the auspices of the "Links" a yearly Photographic Salon is held. The eleventh of these interesting exhibitions was brought together in

the Dudley Gallery last year. That this series of Salons has greatly influenced modern pictorial photography no well-informed person can for a moment have any doubt whatever. Mr. Craigie's position among these earnest workers necessarily has brought him into close touch with the present-day tendency of pictorial work. And as we all are more or less unconsciously influenced by our friends, we may expect to see in his work something of the general effect of this forward wave. Indeed, he freely confesses that he is not a little indebted to this series of exhibitions for stimulation and encouragement in his own efforts.

In his early photographic days he was fortunate enough to lay a good foundation in technicalities, and though he now speaks of these efforts as examples of "the usual thing," yet we have seen enough of them to know that he was at that time producing work which would compare favourably with most of the usual exhibition work of to-day.

A visit to one of the early Salons before he became Hon. Sec. acted as a revelation and set him off on more thoughtful lines. Those of us who have watched with interest his pictorial development have year by year been interested to note a steady advance. The Salon avowedly professes to accept only such works as indicate some personal feeling, taste and judgment. This is a position which is not only eminently reasonable, but also is already being justified by its results, as we may see in Mr. Craigie's short series of examples herewith given.

But his case is only one among many others. This, again, the reader of our previous volumes may see for himself; for it so happens that all the members of our series of sun artists hitherto reproduced are members of the Linked Ring who have kindly lent examples of their early as well as later

works for reproduction.

The reader will hardly be surprised to be told that Mr. Craigie is an admirer of Rembrandt, Whistler and Watts, and it is interesting to note that he is not only a lover of pictures, but also of music, in which he has no little knowledge and skill as well as a wide and generous appreciation.

In photography his earlier taste was of a general rather than special character, but latterly he has found chief interest in portraiture and figure studies. His preference is towards diffused rather than sharply defined images, but wisely he avoids carrying diffusion to the excess of loss of structure. Equally wisely he attaches great, if not the greatest, importance to truth of tone in rendering of light and shade. A portrait, he holds, should be not only an agreeable picture, but also a character likeness as well, and should tell us something about the inside as well as the outside of his sitter's head. In general the preference is for a lens of long focus, so that he may get far enough away from the figure to retain good proportions. He inclines to the opinion that a lens having a generous diameter aids in preserving modelling. Exposures are distinctly on the generous side, and his negatives would by less experienced workers be pronounced to be rather thin. Yet, as the proof of the negative is in the print, we see for ourselves

THE PICTORIAL WORK OF REGINALD CRAIGIE.

that these negatives give prints that are eminently

satisfactory.

One can scarcely say that he favours any special process, seeing that he is equally at home with platinotype, carbon and bromide enlarging, while photogravure and gum bichromate are included in the printing repertoire. In the last-named process he has great faith for the artistic future of photography. He regards the framing of a picture as a most important matter, holding that each print should be treated on its merits, but is entirely opposed to the use of gold either on the frame or mount.

We add a few jottings on the pictures herewith

reproduced, taking them chronologically.

T.R.H. the Duckess of Teck and Princess May.— This reproduction is from an enlargement of a quite tiny bit of a negative made in 1889—one of our artist's quite early efforts. It shows excellent technical quality, and is not without pictorial effect, in addition to the personal interest attached to the two Royal and gracious ladies at home in their own garden. The example is instructive in showing the help given by the little peep of the distance seen through the opening in the trees. As a rule garden pictures suffer from the suggestion of being shut in—the well-known effect of a "one plane only" effect.

Midsummer Day.—This title suggests the burning, blazing light of a summer sun, when the cattle seek the welcome shade of the leaf-clad trees. In such a case we may expect to see strong contrasts of light and shade such as we have in the example before us. The long, narrow shape of the picture is in harmony with the broad-spreading umbrageous branches. The cattle are agreeably disposed without any special geometric form of grouping. The whole scene is suggestive of a warm afternoon, a flood of strong light playing in and out among the overhanging branches and dappling the ground with

flecks of green and gold.

Viola.—We now observe a turn from Landscape to Figure, and at the same time notice the trend away from the usual thing and towards a broadening of effect. The drapery is sketchily rendered as

light and shade rather than any specific texture. The half-dreamy expression of the eyes well befits the pensive turn of the head. The picture is more a decorative presentation of flesh tones rather than a portrait or likeness. Our adverse criticism is that the large mass of dark hair tends to give the composition something like a top-heavy disposition of light and shade. The student will not fail to notice the value of simplicity of arrangement in this study.

Portrait Study.—In this case we see a somewhat further departure from the conventional procedure. It is open to question whether so large a mass of light drapery just under the face is an element of weakness in the composition. But, be that as it may, we must readily admit that the "placing" of the head in the picture space, and the way the picture is trimmed so as to give emphasis to the face, are personal notes of great interest. The student will, of course, observe the decorative line of light afforded by the wavy edge of the hat.

Arthur Burchett, Painter.—One hardly needs the word "painter," for the pose of the head and the holding of the brush are enough to tell one that this is not a make-believe model. Note how the head coming high up on the picture gives one the suggestion of a tall standing figure. The light falling full on the brow accords well with the suggestion of a painter's studio. The hand and palette are wisely kept well subdued. The lighting is simple, broad, direct, and effective. This example of a portrait study should have special interest for the landscape students of this volume, as it so well exemplifies breadth, gradation, and balance, which are mentioned on another page.

A White Silk Dress.—In the opinion of some of Mr. Craigie's friends this is regarded as one of his most successful results. The portraitist will hereby gather several valuable hints as to lighting and posing in an ordinary room, as well as learn the advantage of keeping down the density of the negative when dealing with strong lights or white subjects. Our only fault to find is one unfor-





Fig. 3.

R Craigie.

T. R. H. the late Duchess of Cech and Princess May

(now Princess of Wales). Digitized by Google
July, 1899.

THE PICTORIAL WORK OF REGINALD CRAIGIE.

tunately inevitable when working in small rooms, viz.: the pronounced perspective effect which makes the floor seem to rise up towards the distance, etc.

Herman Vezin.—In this example we see something of the admiration which our artist has for his master, Rembrandt. The texture rendering of the light silky hair is especially noteworthy. The thoughtful quiet strength of the sitter is admirably suggested. The spacing of the background has been well-thought out. The modelling of the face, obtained by lighting, ample exposure, tactfully developed, and no retouching, cannot fail to teach the observant student a valuable lesson.

A Study in Tones.—This Mr. Craigie places among his most successful efforts, and his opinion is well supported by many others well competent to judge. We notice the strength which we get from the long scale of tones extending from the white lace collar to the black shawl. The nearly white door makes a telling background for this white lace, as well as the thoughtful face in subdued half-tone. The hands are naturally and unobtrusively disposed. The picture, which, like other truthful tone renderings, will be found to improve upon acquaintance, is a valuable lesson in the translation of tones by means of photography. To quote, once again, William Hunt, "It is just light and shade which makes a picture."

Our notes on Mr. Craigie's work have by the inflexible exigencies of space been brief, and we hasten to anticipate and agree with those of our readers who would say that the pictures themselves are their own best commentary. In commending them to the thoughtful attention of our readers, we would on their behalf act as their spokesman, and tender our united hearty thanks to Mr. Craigie for having enabled us to have these reproductions before us as a permanent reminder of their many instructive and attractive features.

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Note.—In several cases our reproductions were made from much larger originals. Will the reader therefore make allowance for the inevitable loss of quality due to reduction and reproduction?

Introduction to Landscape Photography.

By JOHN A. HODGES, F.R.P.S.

HE following notes upon landscape work are intended for those who, having taken up photography as a pastime, and consumed many boxes of plates in promiscuous snap-shotting with a hand camera are beginning to realise the greater possibilities in the direction of serious pictorial

work afforded by the use of a stand camera.

Choice of Apparatus.

The first point to be determined is the size of the camera. The reader, if a town dweller and a good pedestrian, will probably desire to make his camera a constant companion in his country rambles, and, in such a case a light portable quarter-plate instrument will be found most suitable. On the other hand, should he be residing in the country, where porterage would be easily obtainable and cheap, then a camera of a large size might be worked with advantage, especially if the scene of his photographic labours happens to be readily accessible.

Size. It is pre-supposed that he who elects to use a small camera will enlarge, and this at once raises the question of the comparative merits of direct prints and enlargements. The writer considers that each method of working is capable of producing equally good results from an artistic point of view. The chief characteristics of the enlarging process are boldness and breadth of effect, whilst the direct method gives unlimited scope for securing a subtle tonality and delicacy not so easily obtainable in any other way.

In any case, our advice is not to compromise matters by selecting a medium-sized plate. Without for a moment desiring to disparage small pictures, there is no doubt that photographs intended for mural decoration or exhibition purposes are more effective if of reasonably large dimensions. We would suggest, therefore, that if a small camera is

INTRODUCTION TO LANDSCAPE PHOTOGRAPHY.

chosen, it should be a quarter-plate, whilst if the pictures are to be taken direct, we consider that 12×10 should be the minimum size.

The Camera. The camera, whether large or small, must be strong and rigid when extended. The rage, for lightness and portability, in conjunction with cheapness, has resulted in a great number of flimsy and worthless instruments being placed upon the market. If a good make is selected, and a reasonable price is paid, a truer economy will be effected than would be the case were a low-priced flimsy article purchased.

The camera should be provided with a double extending base, a rising and falling front, reversing and swing back the latter being extremely useful when using large stops in bringing the foreground into a good general focus.

The Lens. The lens is probably the most important part of the landscape photographers' equipment. The most suitable type is the single landscape. Extreme rapidity is not needed, nor is microscopic definition a desideratum, therefore expensive lenses of the anastigmatic type are quite unnecessary. These remarks apply, perhaps, more particularly to large direct work. When small negatives (for subsequent enlargement) are in question, a lens capable of giving critical definition may be used with advantage, as all the necessary diffusion can be obtained in the enlarging process.

Focal Length. The most useful focal length for pictorial landscape work will be from one and a-half times to twice the length of the base-line of the picture. The focal lengths of the lenses listed to cover the standard sizes of plates in the dealers' catalogues are altogether too short, and include far too great an angle, for good pictorial effect in general landscape work. Sets of achromatised single lenses of varying focal length are now easily procurable, and, if possible, one of these should be obtained, as their possession will enable the reader to be independent of all restrictive technical conditions in selecting his point of view.

A sky-shade will be found a most Sky Shade. useful adjunct to the landscape photographer's equipment. Fine effects of light and shadow are often to be obtained by pointing the lens towards the sun, although the text-books solemnly warn the tyro against working under such conditions. When a very bright object is photographed, or direct rays of light are allowed to enter the lens, what is known as a flare-spot is formed in the centre of the image, a result which would, of course, ruin any photograph from either an artistic or technical point of view. Further, although a flare-spot might not manifest itself when working under such conditions, a mistiness or haziness of the image will often result, and the employment of a sky-shade will prove an efficient remedy in such cases.

Modern lenses are rarely fitted with sky-shades, although the attachment is often found on older instruments, but any working optician would fit one for a very small charge. It should be so adjusted when in use as to prevent direct sunlight from falling on the lens, but must not cut off any portion of the image.

An instantaneous shutter, properly The Shutter. so called, is scarcely needed in landscape work, as, in the majority of cases, extremely short exposures will be found to be inimical to the production of the highest class of work. But occasionally a shorter exposure than can conveniently be given with the lens cap may be necessary, and then a shutter of suitable type will be found extremely useful. The writer invariably uses what is called the "blind" shutter. Its principle is extremely simple, the exposure being effected by pulling a string and drawing an opaque curtain or The exposure may be blind across the lens. graduated so that the sky receives less than the foreground, and by this means clouds can be secured in a normally developed landscape negative. Exposures of from $\frac{1}{18}$ of a second to any longer duration can be given, and its use dispenses with any necessity for using the cap. Digitized by Google

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Fig. 5. A WHICE SILK DRESS.

R. Craigie.

INTRODUCTION TO LANDSCAPE PHOTOGRAPHY.

The Tripod stand should be strong, rigid, and adjustable in height. These qualities can be secured without entailing undue weight or bulk. Rigidity is of the utmost importance in landscape work, as with some subjects long exposures are essential, particularly when isochromatic plates and a deep screen are employed. The novice may be reminded that if he desires to excel in pictorial landscape work he must be suitably equipped, and avoid flimsy apparatus.

Pictorial Hints. But a few practical suggestions upon the selection and treatment of the subject, based upon the experience gained in many years practice, will probably prove helpful and instructive to those whose acquaintance with

photography is more limited.

Choice of Subject. The first essential for the production of a successful landscape photograph, if it is to be of pictorial interest,

is a good subject. It is ignorance of the essential conditions necessary to attain this desired end that leads so many to failure. It by no means follows that because a subject is pretty or attractive to the eye, it will therefore serve as the basis, or raw material, for a successful pictorial photograph.

Before attempting to photograph a particular scene which may appear to form suitable material for an exposure, an endeavour should be made to analyse it, andaskone's-self why it attracts. Possibly it will be on account of its colouring, and if so, despite the use of isochromatic plates, the probability is that the photographic result will be extremely disappointing. As an illustration of this it may be asked what subject in nature is more beautiful than a corn-field in bright sunshine, with its glowing, pulsating, masses of yellow, in harmonious contrast with the dark green foliage of a fine row of elms, the whole encanopied with the etherial azure of a brilliant summer's sky. Such a scene, however, is essentially a painter's subject, for its charm is due to colour, and its beauty when translated into monochrome by photography (at best a poor translator) almost entirely disappears. If, when tempted to make an exposure upon such a subject, we first look at it

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Suitable

Scenery.

through a piece of blue or smoke-coloured glass, we shall obtain some idea of how it will appear when photographed, and by so doing many an otherwise wasted plate may be saved.

The difficulty of correctly translat-Ortho-Plates. ing colour into monochrome is one of the most serious drawbacks to successful pictorial photography. The employment of isochromatic plates may be regarded as essential for almost every kind of landscape work. It is often said that the use of a screen is unnecessary, but by following such advice we deliberately reject half the advantage of the process. A deep and a light screen should be carried, but care should be taken only to use the former when the nature of the subject demands it. Over-correction may result in as displeasing and untruthful a rendering as the under-correction consequent upon the employment of an ordinary plate.

Many photographers fail to realise

the kind of scenery that best lends

itself to photographic treatment. Some seem to think that in order to command success, it is necessary to seek for their picturemaking material amongst the grandest and most sublime scenery in nature. No greater mistake could possibly be made. Probably no country has been more photographed than Switzerland, but the photograph which in any true and convincing way conveys to the mind of the observer the majesty and dignity of its snow-covered peaks, their vastness, and awe-inspiring sublimity, has yet to be made. To portray such scenes adequately seems to be beyond the power of photography. Even the fine mountain scenery, despite its comparatively low altitude, of our own Islands, has so farhad but scant justiced one it by photography, and one is perforce compelled to admit the great limitations and shortcomings of photography in dealing with material of this class. the photographer exercise a little discretion. Fortu-

nately his choice of subjects is still a wide one. Let him bear in mind that those of a simple nature will usually make the most satisfactory and

INTRODUCTION TO LANDSCAPE PHOTOGRAPHY.

he leaves the portrayal of the majestic and the

grand to the painter.

In advising the selection of simple subjects for photographic treatment, one must be careful to avoid the introduction of anything which is petty or commonplace. Many an otherwise charming photograph has been ruined artistically by the chance inclusion of some commonplace feature such as a modern building, or it may be a new piece of fencing, a brick wall, or a galvanised iron roof on an otherwise picturesque out-building, whose existence was overlooked at the moment of making the exposure.

Whatever be the nature of the Lighting. subject, the greatest attention should always be paid to its lighting, for light and shadow are, after all, the cable and anchor of the photographer in all that pertains to the artistic. But here, again, a word of warning is necessary, for many effects of light which to the eye appear almost entrancing in their beauty, would, when reproduced in a photograph, be almost repellant. As an instance of a type of subject which needs special care in treatment to avoid the production of a spotty, discordant, and irritating effect, reference may be made to fig. 9, which to the eye at the moment of making the exposure appeared to offer the most promising material for the production of a charming photograph. The result, however, was extremely disappointing, and anything but artistic. The brilliancy and freshness of the young foliage, reflecting the sunlight in a thousand glittering spangles, dazzled the eye and prevented one realising that the resultant effect in the photograph would be the production of an irritating mass of spotty lights and shadows.

Choice of Lighting.

But the subject was such a good one that it induced us to make a second attempt at securing a more pleasing rendering. This time, however, a day was chosen when different atmospheric conditions prevailed; we waited until near sundown, when the shadows were long, and the mists rising from the marshy banks of the lake subdued the definition of near and distant objects, and imparted a dreamy

atmospheric effect to the scene absent at any other The result is shown in fig. 10.

Mention has already been made of the fine effects sometimes obtainable by pointing the lens towards the source of light. To advise such a procedure is, in the eyes of a pure technican, rank heresy; yet the most beautiful effects can be so obtained. The precautions already advised to avoid flare must be observed, and all danger from this source can generally be avoided, and the pictorial effect enhanced, by arranging the composition so as to get some opaque object between the source of light and the lens; by so doing we can bring the highest light into juxtaposition with the deepest shadow, a well-known device of the painter, and one often productive of a fine effect. Fig. 11 is an example of a woodland scene so treated.

In addition to the precautions already advised, there is yet another very essential one, viz.: the use of a backed plate whenever a subject like that just mentioned is attempted, in order to safeguard against halation, which is very prone to make its appearance under such conditions. The writer invariably uses backed plates, whatever work he may be engaged upon, and for landscape photography of any kind he regards their employment as essential.

As to plates those of extreme sensi-Plates. tiveness should be avoided, unless indeed the subject happens to be a very strong and contrastful one. In deep, dark glen views, taken in partial sunlight, or in woodland scenery under trees, their employment may offer advantages intending to reduce contrast, and preserve a better gradation. But for general landscape work, a plate of medium rapidity and colour-corrected will be found most useful.

It is impossible to lay down any hard and fast rules for development. The procedure must be varied according to the nature of the result desired. If the aim is a strongly contrasted effect of light and shade, choice of plate, exposure, and developer, and the mode of using it, must all be adjusted accordingly; and a totally different treatment would be Digitized by Google

R. Craigie.

Midsummer Bay.



INTRODUCTION TO LANDSCAPE PHOTOGRAPHY

demanded if the intention was to secure some delicate atmospheric effect.

The Negative. Speaking generally, a negative of a somewhat thin type, full of gradation, and in which the scale is not too abrupt, will be found the most suitable and easy to deal with in the printing frame, especially if platinotype be the process by which the final prints are to be made. It has been our privilege and our pleasure to have seen the negatives of many of those who stand in the forefront as exponents of pictorial photography, and it has been noticed that, almost without exception, their negatives possess the qualities to which we have referred.

Although much else be left unsaid. Definition. so vital a matter as the focussing of the picture must be touched upon, it being so powerful a factor in the infusion of pictorial quality into an otherwise ordinary photograph. It is not intended to contribute to the wordy warfare that has so long raged on the vexed question of sharp versus fuzzy pictures. We advocate neither extreme. and hold the opinion that if any photograph conveys to the mind of the observer the impression that it is either sharp, or wanting in definition, the particular method of focussing employed is at fault. The photograph, as a picture, will be found either to lack motive, or its interest has been subordinated to the particular method of treatment adopted. a photograph is a pictorial success, the mind will be unconscious of whether its details are sharply rendered or otherwise.

We were almost writing that sharp definition is incompatible with fine artistic effect, but remember that some of the lovliest gems of pictorial landscape photography have been characterised by definition which might almost be described as microscopic. No rule can be laid down, no dogma expressed, that shall meet all cases. There is no artistic merit, per se, in either sharpness of definition, or diffusion of focus. They are merely modes of expression, and it must be left to the artist to decide, whether he be photographer or draughtsman, which will be the more facile means of expressing the sentiment he desires to convey.

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Landscape Photography.

By A. HORSLEY HINTON.

ROBABLY the majority of people will assert that landscape photography is easy —that is to say much easier than portraiture or figure subjects—a fallacy arising no doubt from the greater ease with which a landscape picture will win public approval, because most people are

quite unable to say when a landscape representation is untrue, whereas they readily recognise less glaring errors in the portrayal of the human face or figure. The most indifferent representation of a landscape scene will pass muster with the average man. He recognises certain forms as being intended for trees or mountains. He could do as much with a child's drawing, but as to whether such forms are really like trees and mountains-true in detail and in their relative tones—he is either oblivious or incapable of saving. his knowledge of nature out of doors being of a superficial and general kind. But if in the portrayal of a human figure the limbs are made too long or too short he detects the error at once. Yet it is not too much to say that he constantly accepts landscape pictures in which are inaccurracies as great as though the human figure were depicted with six limbs instead of four, or a black face instead of a pale one.

Witness how, until comparatively Falsities. recent times, many people accepted unquestioning photographs of landscape the sky left out, that is with the sky represented by a vacancy of white paper, and yet remain content with glorious green foliage reproduced with inky blackness or distances robbed of all their mystery of grey atmosphere. Of course, if these things are of no importance, then landscape pictures of such an order are easy enough, but gradually popular taste is being cultivated to a truer perception of nature, and taste has very properly become more fastidious. The student Digitized by GOOGLE who is in earnest and does not quench his desire for the best by saying of just anything his camera gives him, "That's good enough!", will soon find that landscape photography involves a great many difficult problems which become harder to solve as his closer and more frequent observation makes

him more perfectly acquainted with nature.

But before going further let it be clearly understood that even the most irreproachable accuracy to nature does not in landscape or any other class of subject cover the whole purpose to which many are desirous of applying photography. Probably the majority of landscape photographers have as their object, though more or less vaguely defined, the production of something akin to the artists' painting.

Copying Nature.

The photographer not having had the advantage of early artistic training almost invariably shares with the generality of people that deeply-rooted fallacy that the purpose of all pictorial art is to copy nature, and so in striving to secure absolute fidelity to the original, he unconsciously misses the road which might lead to pictorial or artistic success, and follows a by-path.

Now, whilst such a knowledge of nature as will enable one to discriminate between truth and untruth, and a skill which gives the power of reproducing truthfully where one so desires are essential to artistic success, yet something more

is needed.

"Views."

I surmise that this book aims chiefly at giving its readers help and instruction in landscape picture making as distinguished from the production of simple recognisable records of landscape views. Indeed, the latter one would hardly expect to find classed as landscape photography, inasmuch as mere landscape views, unless illustrating local flora or the conformation of the land, such as an explorer would produce during his travels, will barely possess sufficient interest to justify existence.

The idea of a landscape picture or photograph is rather the representation of some scene possessing no particular historical or geographical interest.

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On the contrary, it appeals to the beholder as beautiful and inspires a desire to perpetuate it in pictorial form, so that not only he himself but others may at another time derive therefrom the same pleasure or enjoyment which the original awakened. Hence the science (if one may use the term) of pictorial landscape photography is the knowledge of those principles whereby representation of such a kind may be made.

Picture v. View. Within the limits of such an article as the present it is, of course, impossible to treat so wide a subject as this exhaustively, or even to expound at all fully the principles involved, and so for convenience let us consider the landscape view and the landscape picture, both being produced by photography under

the respective significations, Real and Ideal.

Now it will be found, and no doubt has often come within the experience of the reader, that the photograph of a landscape which seemed beautiful made in strict accordance with photographic instructions, technically good and even if faultlessly accurate as to form, perspective, tone, etc., proves disappointing when finished. It is Real, that is, it is true to the reality, and yet somehow it fails to give the impression of the original. I have here used, almost unwittingly, a term of which more must be said anon (for it is at the root of the problem) namely, the "impression." Put rather roughly a picture, as distinguished from a topographical view, is the representation of a personal impression rather than of actual facts or realities, and hence a picture is Nature Idealized, and it is because the development of photography, its processes, and all the appliances and materials employed therein, has been in the direction of producing facsimilies of the real that those practising it without independent motive have made photography appear incapable of artistic expression. They have not known that the picture should express the ideal and have not therefore attempted to express it.

Technical v. Pictorial.

It would even seem that those whose mission it has been to perfect the means have been guided by a totally different motive from those who elect to





use them artistically. To these latter it was essential that they should have the power of faithfully copying the reality, even though that be not their chief aim. Indeed, there is the necessity of keeping well in mind the fact that in employing photography for artistic purposes it is not essential to put into practice all those powers with which in striving for realism the makers of the process have endowed it. In other words, when attempting to idealize only just so much of the realistic should

be used as may seem desirable.

It will probably at once occur to anyone that to attempt to idealize with a method or process whose chief merit is its unerring reality were vain. But whilst occasional results prove that it is not impossible, obviously this is just one of those difficulties which-not apparent at first-have to be grappled with by the landscape photographer. First he must learn to achieve fidelity to nature. He must become intimate with physical facts and know how to reproduce them, and then with this knowledge as a foundation he must discover how best to use it to express his ideas or impressions. I say "discover," implying thereby that there is no fixed course or precise canon. Because just as a given scene will impress each individual differently, so probably the method of expressing that personal impression will differ. Perhaps the best that one who would try to teach another can do is to firmly convince him of the necessity of producing or suggesting an ideal aspect of any scene, and making him understand in what manner it departs from the reality on which it is founded.

Regarding technical consideration, Technicalities. the choice of lens I think matters less than some seem to suppose, because the field of view included on the negative plate need not, necessarily, be the field of view retained in

the picture.

But since we cannot, as with the The Lens. freedom of unrestrained natural vision and untrammelled pencil, include in immediate response to the mind more or less of the view, it will be best to carry two or more lenses of different focal length, and use in each case the one Digitized by GOOS

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which seems best calculated to depict the scene as it impresses us.

The use of a backed orthochromatic The Plate. plate and two or more coloured screens of various intensities I should regard as absolutely essential. The whole interest and pleasing grouping of light and dark are often due to contrasts of colour, and the relative value of such colours can only be translated into black and white by orthochromatic means (Figs. 14 and 15). Indeed, it will sometimes be necessary to overcorrect photography's false rendering of colour values in order to produce the visual impression monochromatically. I should argue in favour of a very rapid plate, provided excessive speed is not attained at the sacrifice of other qualities. To use a slow plate seems like foregoing a possible advantage which modern advancement has placed at our disposal, but which we need not exploit unless we wish.

Backing. Similarly with regard to "backing."
We may not need its aid, but as backing is no disadvantage and may even unexpectedly assist in securing true relative tones, there seems no reason for not getting any good out of it we can.

Development. In development aim at producing a negative as thin as possible compatible with the proper printing of contrasts. There should be no portion of the negative which will print absolute black, because every point in a landscape, however dark it may seem, does reflect some light. Similarly there should be no quite opaque portion printing detailless white, because the purest white surfaces in nature possess some gradation and detail.

Printing
Processes.

As regards printing processes, this is a matter for personal decision, the sole determining factor being whether or not the process used gives the most satisfactory interpretation from the point of view of the individual picture maker. Permanence has really nothing to do with artistic quality. It is merely a convenient attribute.

Pictorial Aims. So much for technical considerations, the consideration of the process as far as it may be used to produce an accurate or real representation; the pictorial or artistic considerations are not so easily set forth.

To begin with we have Composition. Not because every beautiful landscape is well composed in nature, but because instantly any object attracts our notice and gives us pleasure, our mind arranges the other objects around it in imagination, making them subordinate and contributory to that which appeals to us most. The undesirable and destructive object we overlook, we do not notice it, and may almost deceive ourselves into believing it is not there. Thus through our imagination we actually see a more perfect landscape than exists. and if we depict it then and there in a dry matter of fact or realistic manner the result will prove a First then, we must break off disillusionment. from our ecstatic imaginings and consider if it be possible to choose a view point from which the various objects do actually compose so as to approximate to our mental composition. Similarly in choosing the particular lighting, shape, dimensions, and even the exposure, all must be determined by how far it seems likely we shall be able to approach our ideal impression. The direction of the light may throw into strong relief the chief object, or may suppress what is not desired. The form of the picture may emphasise the feeling of loftiness or of broad expanse. Exposure may tend towards softening or intensifying contrasts. All this does not sound easy, and I commenced by enunciating the fact that it is not, but it may not be impracticable. If it were easy perhaps it would not be worth doing, but being worth doing it is worth doing well, and the strenuous effort demanded the ever receding summit and new heights which each upward step discovers is the good in it.



Cloud and Sky in Landscape Photography.

By EUSTACE CALLAND.

O those who have the faculty of translating colour into black and white, the sky is rendered more or less grey (in its monochrome equivalent) and never as white as the paper on which the picture is printed. The colour and dependent colour value of the blue

varies with the direction of the light, the atmosphere, and the sun's altitude. Facing the sun, the blue is almost effaced; opposite, it is strongest and darkest. It is nearly always lighter at the horizon, but in large towns the effect of dust and vapour may reverse this appearance when the sky is seen over the houses. In spring, when there is an east wind in this country, the blue has a dryness and opacity that is absent at other periods. In the East there is a depth of blueness that is almost black. All these varying conditions of colour, luminosity, and gradation have to be represented in black and white by various shades of grey.

Blue Sky with Clouds.

The task is somewhat easier where clouds are present. Even in Nature wisps of cirrus and the so-called mackerel sky greatly increase the idea of depth and distance. These forms of clouds are really simpler to deal with than the bolder cumulus with their strong shadows and perspective.

Rendering of a Grey Sky.

When we get a grey sky the problem is easier still. It has not the even gradation of the blue sky. The clouds which float across it are usually dark, and are not white in the high-lights and darker in the shadows than the ground, as is the case with cumulus in a blue sky, and they can be photographed without so much reference to the problem of colour. The landscape also is low-toned and can be harmonized with less difficulty, most of it



Fiz. 8. Berman Vezin.

R. Craigie.

CLOUD AND SKY IN LANDSCAPE PHOTOGRAPHY.

being probably lower toned than the sky. There are often instances, however, where the sun shines out brightly after a passing storm, when the landscape, or parts of it, are brilliantly illuminated against a black cloud, and are many tones lighter. A good example of this in painting is seen in François Millet's April storm effect with rainbow in the Louvre, which has been most effectively reproduced in a photograph. The photograph shows the illuminated portion of the land and woods lighter than the dark sky, as it should be.

The grey sky associated with snow scenes generally appears particularly truthful in photography.

It is quite a difficult matter to The Colour represent the ethereal blue of the Value of sky by a monochrome process on Blue Sky. paper, such as photography, which goes so much beyond mere suggestion. Apart from the technical difficulties of preserving the colour values and tones of the landscape objects that meet it, is the task of rendering in some degree the almost unattainable depth and palpitation, as it were, of which we are conscious when looking at it, but which a grey deposit on paper does not at all suggest. We know that a blue sky as seen opposite the sun, rendered with fairly accurate colour relation to the landscape and slight gradation from horizon to zenith, is disappointing in an ordinary platinotype print and fails to convey the impression of the original. This is still more marked in the skies of Southern Europe and the Have we yet seen Italy, Egypt or India pourtrayed with the true value of the blue sky in photography? In those countries opposite the sun it may be said with truth to be darker than anything terrestrial save the shadows. Yet if an attempt be made to sun down the sky to the proper value the result will be unnatural, and the landscape appear as if under snow.

Printing
Process.

The printing process chosen has much influence. One cannot help feeling that the evenly diffused gradation of photography is at fault. The luminousness of the sky is much better shown in mezzo-

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tints and etchings than in photographs, where not only are the gradations arbitrary but the surface is broken up. If the photograph deposit be broken up in some way—partly to be achieved by the use of rough paper, by printing through some material (in the case of a plain sky) or by the use of a process such as gum-bichromate, where a broken up surface can be left by means of a brush—the sky can be kept more approaching its proper value without appearing too opaque.

Importance of Correct
Printing Depth.
of the picture. Quite a small difference will suffice to spoil the original intention. It is better to err on the side of being too light than too dark. Clouds too heavily printed will seem too near as well as too solid, and lose their vaporous character.

Pictorial photography is made up Relative Values of compromises. Our composition a Compromise. is usually a compromise. and landscape we can seldom get just as we Our colour correction, through limitations of apparatus; our effects through the comparative fixity of gradations, are seldom quite satisfactory. We may have the relation of clouds to blue sky in fairly correct value, and find that when added to the landscape the effect is dark, airless and sunless. We have the general effect to study; the dazzling effect of sunlight; the low subdued tones of evening or of a grey day; the brightness of a spring morning, the landscape high in tone, the greens brilliant, the sky a deep blue, relieved with strong white clouds. When desirable, we must sacrifice the strength of clouds to the general impression, for true relative values may sometimes disturb the sentiment of the whole.

The scale of tones that an artist arranges differs from the photometric one, which is not steep enough in gradation locally to enable us to obtain effects easily enough secured in painting. For instance, a mass of trees or buildings brightly illuminated against a dark sky, as referred to elsewhere. These,

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if printed lighter than the sky, as they should appear, will seem flat and as if covered with snow through the want of emphasis in their shadows. The gum-bichromate and the later carbon processes are beyond any others in the possibility of successfully treating these tones, but it is to be regretted that the gum process in the hands of most of us gives such a small range of tones.

landscape photography the In The Sentiment sentiment or idea intended to be of the Sky. conveyed can usually be aided by the appropriateness of the sky. We all know that long parallel lines of cloud at sunset suggest repose; that flecks and wisps of white in a blue sky give depth and atmosphere—the cirrus may do this and suggest calm also; and how storm clouds may complete the idea of Nature in an angry mood. The general design of the composition, whether formal or otherwise, will influence the selection of the most suitable cloud pattern (Figs. 19 and 20).

The sky may be, and often is, the The Sky chief sentiment of the picture; may dominate. from it we may get all the different moods of Nature, and give titles to our pictures, such as "Showery Weather," "A Coming Storm," "The White Heat," "A September Morning," the title of the illustration, a water colour by J. H. V. Fisher, which is an example of a painter's selection of sky on an upland pasture, and which is certainly the principal feature of the drawing. Also in seascapes we may get our picture from the shadows of clouds on the "wrinkled sea," as seen patched like a quilt, from the cliff top, which afford the chief reason for taking the picture (Figs. 16, 17 and 18).

The Value of Notes made when taking the Negative.

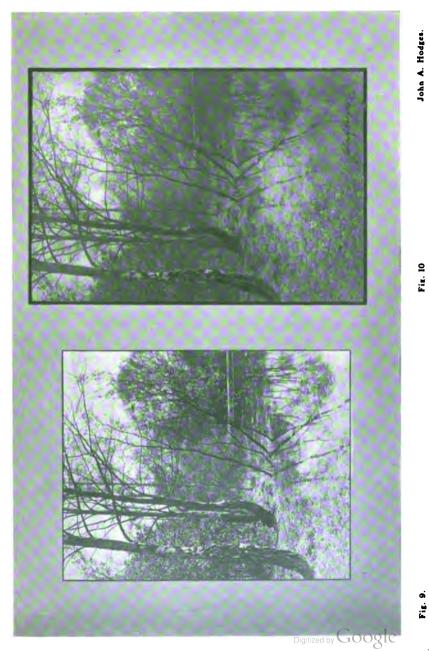
Without in any way wishing to reduce pictorial photographic work to mechanical precision in execution, it may be argued that note-taking at the time the picture is seen and vividly impressed on the memory is of the utmost value and an important factor in pictorial education, and if accompanied by a rough sketch so much the better. The photograph comes

quite different to the impression it is true, but the impression should be adhered to persistently, and worked to. Many of the most charming effects that we try to secure are very transient, and when we have exposed our plate there is a disinclination to study and observe the conditions that originate the pleasure, and they pass quickly from the memory; hence the use of notes, such as the highest light, the value of certain dominant colours, the relation of the sky to the land, cloud shadows and reflections, and whether we can print in a separate sky without disturbing the effect we seek for. Frequently, with the aid of these notes, we may get something of the effect that pleased us in the original that we should otherwise fail to obtain from the negative through having forgotten or failed to note the factors that influenced it.

The sky on a day of briskly moving A Changing clouds is a valuable factor in Sky. landscape composition. When the clouds chase one another across the sky the landscape may be compared to the studio on a grand scale, the clouds are the blinds and reflectors. patient waiting we shall get all possible effects of lighting. We cannot, unfortunately, ensure that moving objects, the sheep and shepherd or ploughing team, shall receive that note of emphasis that a shaft of sunlight falling athwart them may give, but we may be fairly certain that any given portion of the scene will be lighted by rays through the clouds while the rest is in shadow. We can get most effects of light and shade, an ordered chiaroscuro, by patience and observation.

It does not require much observa-Falsity of tion to see that to photograph Printing Zenith clouds near the zenith, and then Clouds near use them nearer the horizon, is a the Horizon. There is, or used to gross error. be, a temptation to take clouds high up in the sky because they usually have greater contrasts, and there are no terrestrial objects in the way, but when used in a landscape contained within a moderate angle of vision, they are wrong both in lighting and perspective. The lighting especially







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is apt to be flagrantly in error when the clouds are anywhere near the sun, or when the sun is high above the horizon. There is perspective to be noted in almost all clouds, and it is particularly important over an expanse of open landscape. As the clouds recede from view they become smaller and smaller, and apparently more closely packed together. Series of clouds seem to close up in the direction of When the distance is hidden by near objects, more latitude is permissible, and the angle of view for the clouds may be shifted a few degrees in any direction. A view of the downs, for example, from the valley may appropriately have masses of cumulus rising from behind, and this is indeed a favourite theme with painters. Greater license also is allowable where the clouds face the sun when the latter is not very high above the horizon. In dealing with seascapes there is rarely need for separate printing, the sea and sky being so interdependent and the exposure identical. without saying that clouds and landscape should be taken with a lens of approximately the same focal length. If the sun or moon be included there is no doubt they look absurdly small even with a lens of long focus, and the painter has perfect justification for making them much larger than they really are in relation to terrestrial objects, as their apparent size is mostly an effect of irradiation.

Harmony in Lighting of Clouds and Landscape. Some experienced pictorial photographers are apt to invite criticism when they print separate clouds into a landscape, if the clouds were taken on another occasion to the

landscape, and the beginner should confine himself at first to landscape with a rather near horizon, so as to avoid the difficulties of shadows and complicated lighting. We have already seen how useful the clouds may be in assisting the landscape composition by the massing of shadows and lights. For the sake of both it is almost imperative in such cases to obtain the sky negative at the same time. Generally it is impossible to get clouds and landscape on one plate without sacrificing essential qualities in one or the other, but whenever possible the sky should be taken at the same time. The student at

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all events should note roughly when either negative is taken the position and height of the sun above the horizon, and the atmospheric conditions at the time. He need not become a meteorologist to do

this, nor do injury to his artistic sense.

Sunlight, that a colour screen destroyed the that a colour screen destroyed the effect of atmosphere and the illusion of distance. Now it is generally found that a blue distance is unprintable in the negative, and the screen used judiciously will give the distance as seen by the eye without emphasizing detail. The warm colours being given more according to the visual impression will convey the idea of daylight, not as formerly, as if the landscape were viewed through blue glass.

The effect of haze and atmosphere is dependent to some exent on definition and judicious printing. The clouds must not, of course, in a brilliantly sunny landscape, be printed heavily (see a previous paragraph). The more delicate forms of cloud are impossible without the aid of colour corrective methods. In fact, we may say that all clouds need them.

Orthochromatic plates and screens adapted to them are now so universal, being issued by all the leading plate-makers, that there can be no difficulty in their use, and I would advocate their employment exclusively in all landscape photography.

Study of good Paintings and Monochrome Reproductions of them. The pictorial photographer cannot fail to learn much from the study of good landscape paintings of all periods, not only the modern "plein airistes," but also the old masters. The latter, when they introduce

skies into their pictures, always aim at beauty of composition, and if they sometimes sacrifice truth to convention, the beauty of the convention is a training in itself. Some of the modern painters, though they may give the real out-door effect of Nature, seem to regard composition as of quite secondary importance; but the photographer has always to recollect that he has only his poor scale of browns or blacks to take the place of Nature's colour, and satisfying composition is an essential to him.

CLOUD AND SKY IN LANDSCAPE PHOTOGRAPHY.

Some of the 19th and present century painters of landscape were and are keenly observant of delicate differences of tone and colour, even if they lack other qualities such as grand composition and It is this close observation of fine drawing. Nature, the persistent effort to pourtray her in every possible phase, that is the distinctive note of modern painting. Those familiar with the annual exhibitions of the New English Art Club know how rich in suggestions to the photographer they may be, and how many enthusiastic observers of subtle and three effects of Nature there are, or perhaps we should say were, amongst its numbers. The lesson to photographers was more particularly instructive when a portfolio of platinotype prints of the principal pictures was available in the Gallery for comparison with the originals; these prints were usually very true monochrome transcripts of the original colour, and the sky relation to the landscape as seen in these copies was always interesting.

Some Painters from whom we may get Hints. An acquaintance with the landscape painters up to the period of Constable seems to show that, although they observed the shapes of clouds and their perspective, they were indifferent to their truth of aspect, the main point being that they should serve the interests of the composition in

light, shade and line.

It is naturally among the Dutch painters that we find the sky made a feature, and there are many instructive examples of their work in our National Gallery. With Ruysdael how charming the forms of the clouds are, though doubtfully true to nature, and how beautifully they complete the composition; and in the famous Avenue of Hobbema how beautifully appropriate is the cloud composition to the formal lines of the landscape.

In Ruysdael's "View over a flat wooded country" we have a fine example of the sun illuminating part of a distant landscape, with clouds good in composition but not often seen in this country, and near this picture is Cappelle's "River Scene," that we may take as a lesson in the simplification of clouds, although impossible of attainment in the painter's way. Then attention should be drawn to that

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dignified and simple work of Old Crome, "Mousehold Heath." This is an illustration of cumulus rising over upland, again more simple probably than we should actually find in nature, but possible in photography. Constable's skies are very true to nature; there are numerous cloud sketches of his with hardly any land visible. In the National Gallery his "Cenotaph" shows the sparkle of blue and white seen through trees, contrasts that always appear more brilliant in this way than when observed in the open sky.

The curiously fantastic forms of clouds seen under certain conditions of thundery weather, sometimes towering up into the sky like pillars and contorted into strange shapes, were much favoured by some of the Dutch painters, and they have an immensely decorative effect in landscape, and are worth much

time and patience to secure.

Modern painters have sought to probe every mystery of Nature, every effect of light and atmosphere. Those who have seen Claude Monet's wonderful series of paintings of the same subjects under all conditions of light, from sunrise to sunset, will appreciate the work of one of the most earnest students of nature.

Many of the moderns may be accused of having used, or been influenced by photography in their sky painting; so faithfully rendered is the sky that often we cannot help feeling there is some loss of

breadth and decorative feeling.

Photographers will find modern sky painting at its best in the works of the brothers Maris, also in Anton Mauve and Mesdag, who have worthily carried on the traditions of the Dutch school. In France, Corot, of course, and his more robust and perhaps less poetic successor, Harpigny; also Cazin, and many more; whilst in this country there are Clausen, Stott, Mark Fisher, Peppercorn and Steer, whose pictures are a veritable flood of light sometimes. Sky and light effects are always interesting features of these painters.

General Hints for Young Photographers. Goncourt says: "To learn to see requires the largest of apprenticeships." The novice in photography must learn to see what he has seen

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all his life and practise on a few examples of the various aspects of skies with the unlimited means in the way of chromatic plates and screens now before him: if he does this with the aid of notes of the conditions existing at the time and tries to print to them, he will learn more in a few weeks than in months of casual and careless photography. One of the first things that a painter learns is to leave but what is unessential and harmful to the general effect, and the photographer when he looks through his ground glass at most skies will feel that they are too crowded for his purpose. opportunity for selecting a group of clouds in the right position, more or less isolated, broad in effect and with beauty of shape, comes more rarely than the casual observer would think.

Decorative
Aspect of
Photography.

decorative aspect of photography is a very important one in landscape. The pattern, that is of form, and black and white may be the strongest stimulant of æsthetic pleasure—trees, clouds, foregrounds whose shapes are quaint, unusual, almost geometrical, but stopping short of it.

The Vienna photographers following the painter secessionists have done more in this direction than we have, and it is quite a surprise to come across reproductions of gum-bichromate prints in "Kunst und Kunsthandwerke," or some other art publication, in which the clouds particularly have all the

decorative simplicity of a painter's work.

The Suggestion of Colour.

It is a vital point that the photograph of landscape and sky should suggest colour; the reproduction of the drawing accompanying these notes does this in the platinum print; it is only to be followed out in Nature by representing colour masses by the exact tone value that the eye appreciates them.

Technical Points.

As to the many methods of combining a sky with a landscape negative, or printing out a sky already in the latter, it is unnecessary to say much

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here, since they have been so frequently described. There are some, indeed many cases, where it would be advisable to make a transparency which contains the two in right proportion, from which a new negative may be made, especially if several prints are wanted or the picture is of large size. Retouching or painting on the transparency seems the only course where a dark sky appears through the intricate tracery of the horizon line. For example, the branches of trees. Often the sky will need working on with a stump or matt varnish or tracing paper, etc.

In platinum printing it is a help to work with the paper pinned on an easel, so that the negative can be entirely lifted off and replaced; this enables

depth to be judged more easily.

When using a colour screen, a full exposure should be given especially with strongly lighted clouds, or the result will be harsh and delicacy lost. Sunset effects are often too hard and black from the same cause, and very often from the absence of the screen and the unresponsiveness of the plate to colour differences that are so distinctive to the eye. (See Figs. 16, 17, 18, 19, 20.)

Hints on the selection and arrangement of Landscape Pictures.

By THE EDITOR.

OSSIBLY some of the readers of this book may expect to find among its pages some golden rules whereby "pictures" may be made. Unfortunately, or perhaps fortunately, such rules do not exist, or at any rate have not been found. Nevertheless an extensive examination of painting and other forms of graphic art indicate certain

very broad and general underlying principles of selection and arrangement. These are frequently alluded to as rules of composition. But in this connection the word "rule" means much the same thing as it does in the grammar of a language. It is a convenient abbreviation to express "the general but not universal custom of acknowledged authorities."



Fig. 12. LONDON ATMOSPHERE. Digitized by H. Bairstow.



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The subject of pictorial composition is a wide and deeply interesting one—indeed much too large to be dealt with as a sub-section of such a booklet as the present. We must therefore reserve it for an entire number. But meanwhile we have brought together a dozen examples of landscape subjects, which will go some little way towards indicating the general nature of the subject. We are using these to show what should be avoided rather than what should be done. Indeed all teaching on the subject of composition is of a negative rather than positive nature. Each of these illustrations should convey at least one practical hint, and serve as a reminder for us all, lest in a careless moment we find ourselves tripping in a similar manner.

During the last ten years the present writer has passed in review many thousands of similar photographs, showing one or other of the mistakes here alluded to. Hence one may say that these are among the mistakes likely to be made. Of course the reader will understand that the list is by no means complete. It is doubtful indeed if any "complete" list could ever be compiled. Nor would such a formidable list do more than dishearten the

bravest worker.

Moreover it may easily happen that a good picture may at times exemplify some of the mistakes below mentioned. But this only shows that all such rules or principles are of a very broad and elastic character.

Overcrowding.—That is to say, including in one's picture too much subject matter, too many objects of interest. The more objects there are the less space they must occupy in our picture. Hence our interests are cut up and scattered all over the picture. The well-known saying "when in doubt leave it out" should be laid to heart by every photographer. The more objects we have to "compose" or arrange, the greater is our difficulty in grouping or arranging them agreeably. The beginner often is at a loss to know how his friend A. B. can make a prize medal picture out of just one or two trees and a few leaves, while he fails to do anything with a whole plantation. Let the worker ask himself: Is all this

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subject matter essential? Can I not omit this and that? Why do I wish to retain that or this?

In Fig. 21A we have an ordinary case of over-Technically, the print is creditable; pictorially, it is faulty in several respects. are far too many objects included, viz., boats, people, The objects being many in number houses, etc. and on a small scale, irritate rather than attract. The eye goes from point to point, and is wearied rather than pleased. Overcrowding often means patchiness or spottiness of light and shade. In this instance the many small figures are little more than dots of black and white. Pictures of what might be called the "General View" class are seldom quite pleasing by reason of overcrowding of subject. One's interest is scattered and no definite impression obtained. Walking along the street one passes a shop window where are displayed a score or more different things, but we notice none of them in particular, because they are so many in number, and in a few moments the entire impression has faded.

Emptiness.—This is the opposite extreme to overcrowding. When there are not enough objects of interest or enough pictorial matter included, one feels the suggestion of incompleteness, i.e., that the artist intended but omitted to add something more. Of the two extremes perhaps it is better to have too little than too much matter, yet both extremes are to be avoided. In Fig. 21B we have an excellent bit of technical work, though the picture fails to make much lasting impression. First, the chief object is too near the centre of the picture space. This arrangement is too symmetrical, too formal. Secondly, the emphatically modern looking steamer is not an object of beauty. It does not suggest the poetic but rather the prosaic side of human interests. The picture as a whole is not satisfactory. It is weak or empty. In addition the light and shade arrangement is monotonous, i.e., roughly put, the picture consists of a dark patch centrally placed with a background of light grey. Again, the microscopically sharp definition of the original print, does not aid in the suggestion of distance and

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atmosphere. But chiefly this picture should convey the lesson that a moderate amount of pictorial matter is generally required to make a picture of lasting interest. This particular print might be more aptly called a "sketch" or "note" taken for the purpose of after-study, or as an aid to memory, rather than a complete picture. Of course special cases may occur when it is possible to convey a certain desired impression, only by a more or less empty picture, and the exception may thus "prove the rule." But in general a picture which strikes one at first as empty, seldom improves on acquaintance.

Proportion.—A great philosopher has said that the art of life is chiefly a matter of seeing and using things in due proportion. It is certainly true that the art of picture making is largely a matter of proportioning things—i.e., sizes, light and shades,

forms, definition, etc.

In Fig. 21C we have a disproportion in more ways than one. The reader will not need to be told that in consequence of the somewhat short focal length of the lens used a rather wide pictorial angle has been included. Hence the road quite near to us seems far wider than it does a few yards away, and that (by comparison) it dwindles down to a narrow

footpath a little further away.

Here we have a case of faulty proportion of sizes. Had the worker employed a lens about one and a half times the focal length of that used and included no part of the road nearer to us than the gate on the right we should have been far more favourably impressed. We can roughly judge of the relative effects by covering up the lower third and right-hand third of the present picture. Then again we have an unpleasing proportion of dark to light for an open landscape subject. Of course no rules can be laid down. But there is an indescribable fitness of proportion as to the amount of light and shade which will best suggest the open country such as is here shown. The height of the sky line is another matter where the sense of proportion will often help to give us a sound decision. It is largely a question of relative pictorial interest. this case this road of exaggerated width occupies a

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measure of the picture space which is out of pro-

portion to its pictorial interest.

Breadth.—Distribution of light and shade is one of the essential qualities of a work of art. That is to say, if the picture is lacking in "breadth" it cannot be quite satisfactory, no matter what other qualities it may possess. If we make half a dozen holes with a cedar pencil in a bit of brown paper and hold this up to the sky we shall notice two things. First, a sense of irritation. Secondly, distraction of attention, i.e., as soon as we try to fix attention on one hole we find ourselves tempted to look at some other holes. Our brown paper with the holes in it is a case of patchiness or spottiness of arrangement. The opposite state of affairs, or grouping of light and shade, might be represented by one large hole in place of many small ones. These cases are, of course, extremes, but help to show the tendency of Breadth and Patchiness.

In Fig. 21D we have an ordinary case of patchy arrangement of light and shade. It will be seen that it is unrestful and irritating in general effect. As soon as we attempt to concentrate attention on any one part attention is drawn to some other Each leaf floating on the water's surface seems to contend with every other leaf for our attention. Similarly the light and dark patches of foliage. Patchiness generally is suggestive of lack of care, or absence of observation and knowledge on the part of the worker. One must bear in mind the difference between the scene in nature and its photographic translation. For it may easily happen that in nature the colours blend, while in the photograph they oppose each other and give contrast. Breadth, when carried to extremes, may give monotony or flatness. For other examples see

Figs. 29 B, C, D.

The Vista Picture.—The idea of arranging a picture or vista to be seen through an arch or avenue, or some such natural frame-work, is strikingly reminiscent of the early Victorian days when a "surprise vista" was an essential feature of every gentleman's park or garden. However pleasing such arrangements may be in nature

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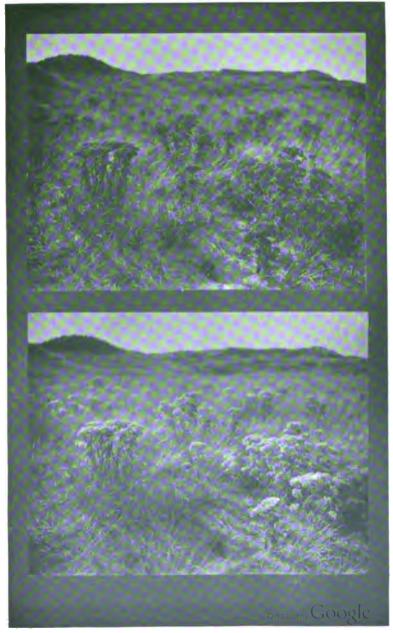


Fig. 15.

A. Horsley Hinton.

ORTHOCHROMATIC PLATE WITH FILTER.



Fig. 16.

SKY TOO LIGHT.



Fig. 17.

SKY CORRECT.

J. H. V. Fisher.



Fig. 18.

SKY TOO DARK.

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(more or less assisted by the architect and landscape gardener), they may wisely be left severely alone by the photographer as they are by the painter. In Fig. 34A we have something of this kind which happens to possess more claims to success than do most of such scenes. But even here we have a semi-theatrical, half-unnatural appearance. The bridge or frame of the picture contends with the view proper for our attention. The two parts do not aid, but oppose each other. In fact, we seem to have not one scene depicted, but portions of two more or less disconnected scenes unhappily combined in one plate.

Usually the frame of the vista is not nearly so sightly as the instance before us. It may be the mouth of a cave, arch of ruins, branches of trees, etc. But in most cases it is so near that it would not be possible to see simultaneously the frame and picture in the way shown in the usual photography. In nature the eye would ignore one or other, and the one most likely to be ignored is the frame part. But in our photographic print, try as we may, we cannot but see the under-

exposed intruding object, be it what it may.

The foregoing also relates to buildings and other objects of interest shown between the branches of trees, etc. Compositions of this kind are very

seldom, if ever, satisfactory.

Simplicity of Design.—A well-arranged or designed picture explains itself at a glance. composition is such as to prompt the question "how does this part belong to or connect with that," then we must condemn the design of that composition. In 34B we have such a design. At first glance one is prompted to ask "how can that large viaduct of several arches rest safely on that tiny river bridge." Careful examination, however, relieves the mind, and we are prompted to guess that the viaduct and bridge are not one but two different structures. Nevertheless, the two bridges as here shown, one over or behind the other, leave us a very inartistic arrangement. It may be urged that this is the only view point from which both may be included, and in reply one may ask: Is it

desirable for pictorial purposes to put two such similar things in one picture? Why not leave out one of these bridges? The mistake here made is confusing a picture with a graphic record of fact. Of course these two objects may appear in nature something like this picture shows them, but that does not necessitate this view being a picture. may be true to nature in that sense, but all natural views are not pictorial, any more than all sound is music or all verse is poetry. In the original a bit of snow-capped mountain seems to be resting on the top of the viaducts, but one can hardly expect this to show in reproduction. Let the reader bear in mind that it is not the function of art to set puzzle pictures, but to present pleasing arrangements of form, light and shade.

Unity of Parts.—Composition means combining two or more things into one whole. If, then, our picture is apparently cut up into two or more parts it is not a composition, but a disposition, of fragments. Fig 34C may be taken as an example of a picture or view cut up into two parts. The print itself is technically creditable, except that the waterfall has been under-exposed and overdeveloped. This gives us in the print, not a stream of rushing water, but something more like a band of frozen milk. Now this white band, running more or less diagonally across a picture, seems to separate our foreground from our middle and extreme distance. The same kind of thing occurs again and again in every collection of landscape photographs. Now it is a line of paling, now a river, now a wall or roadway or river bank. whatever it is, it at once suggests to the spectator that the two parts of the picture do not belong to each other. This is one of the little pitfalls in picture making that one must watch for on the ground glass, because the effect of separation may not seem so marked when we look at a large scene as it does when we cut out a small bit on the ground glass to make our picture. It is in such cases as these that a view meter is so useful, not only showing us our picture the right way up, but also cut out or isolated from its surrounding parts.

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In working amongst shipping one has to watch against foreground ropes cutting off corners of our pictures. Overhanging tree branches may act in the same hurtful manner.

"Unity is strength" is a common phrase, and

equally true in picture-making.

Separation of Planes.—A glance at Fig. 34D will show us a picture which roughly may be divided into a foreground bank of rushes, etc., middle distance tree to our left, and distant hills, etc., to our right. Now if you will stand about 15 or 18 inches from the window pane, and fix your attention on a fly on the glass, you will only see the other side of the street or view beyond the window in an indistinct sort of way. Similarly, if you fix attention on the view outside the window. the fly will only appear as a small out of focus object. That is to say, the eye does not, at the same moment, see near and distant objects equally sharply defined. Going back to our little landscape, or rather to the scene it depicts. Had we fixed attention on the foreground rushes, then the middle and extreme distance would not be seen sharply defined, or if attention be fixed on the distance, then the foreground would not be sharply in visual focus. But our photographer in the little print before us has got all parts practically equally sharply defined. Hence our distance does not look quite distant enough, and the various parts of the picture do not stand away from each other. Now it so happens that in the picture we have a stream, and the mind or reasoning faculties unconsciously get to work and tell us that the large tree to our left must be a certain distance beyond the foreground reeds, but if we cover up this river part for a moment, we shall see how the tree seems to come nearer to us in consequence if it is as sharply defined as the foreground objects.

Briefly put, the essence of the matter is this:—
If we want the various planes of our picture to come one behind the other, and so suggest distances, we must not have all distances equally defined. Whether it must be foreground or middle distance that must be the sharpest depends upon our taste and judgment applied to each case.

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Sky Spaces.—Our next four illustrations are selected to illustrate some common mistakes as regards the all-important matter of light and shade. We may first draw attention by means of Fig. 29A to the way the sky space is cut up by the two trees. These two tree masses divide the sky space into three parts. These spaces are more or less equal in area, i.e., sufficiently so to be compared, i.e., the difference of sizes is not very marked. This is too formal and non-decorative. Again these sky spaces are roughly similar in shape, and again they are more or less rectangular. The total effect is to cut up our picture into three parts of about equal interest as well as size.

Then again the water part is somewhat monotonous in interest. From this example we may learn the need of taking into consideration the distribution of the chief patches of light and shade in our picture. Very frequently we may modify such sky spaces by a slight change of our position—or by using a lens of different focal length—or by the introduction of suitable clouds—or by trimming the print in some other way. A good picture is agreeable not only as a whole, but its component parts are also attractive and interesting

when an analysis of them is made.

What is here said as to formal and undesirable sky spaces applies equally to other parts of a picture cut up into parts. Thus a meadow may be cut up by paths, railings, etc. Buildings may be

divided by unsuitable shadows, etc.

Flatness and Monotony.—This is one of the opposite phases of the state of things just mentioned. In fig. 29B we have a somewhat similar strength of light and shade more or less evenly distributed all over the picture. This gives a feeling of flatness, suggesting that all the objects are the same distance from us—in other words, absence of relief. This is uninteresting, monotonous and non-decorative. In this case the cause is very largely due to bad lighting. The large near tree trunk shows a little difference of light and shade, but not enough to suggest roundness and solidity. Cast shadows are absent. This state of things is suggestive of

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a dull day when the sky is overcast and one does not quite know where the sun is. On such an occasion one is tempted to over-expose the plate. This will, of course, in turn, tend to flatten or reduce light and shade contrasts. Then again, it is needful when selecting such a picture to bear in mind the difference of nature colours and the photographic translation of these colours, for it may easily happen that the colour contrast in nature may be well marked, but that the plate will only be influenced by light and shade contrasts.

We have laid stress on the importance of breadth, but in the case before us, we have flatness which may be regarded as breadth carried to undesirable

extremes.

Relief and Contrast.—From the last example we may easily pass to one of its opposites, viz., contrast of light and shade. In Fig. 29C we have a light and a dark tree trunk brought into comparable contrast towards the centre of the picture. Each tends to emphasise the other. Then, again, our ground is cut up into bands of light and shade, so that starting from the lower edge we have a band of dark, then of light, another of dark, another of strong light, and beyond these a mingling of light and shade.

It will be readily seen that this altering of light and shade gives a suggestion of space and distance. Also that each part "comes away from" the adjacent parts, i.e., is in relief. Thus the dark tree in the centre is obviously further away than the near light tree trunk, but not so far as the well-lit foliage in the distance. At the same time this arrangement also tends to cut up our picture in various parts. And as we have already seen that

is just what is not wanted.

The reader may now feel himself between the Scylla of flatness or monotony and the Charybdis of alternating lights and shades, which cut up his picture into separate portions. The remedy is found by avoiding both extremes and seeking a middle course, such as is indicated in our next example, 29D.

Breadth.—This has already been mentioned as a desirable if not quite essential quality in pictorial

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work. But the reader may be disposed to complain that no definition of breadth has been given. Indeed one may doubt one's powers of formulating anything like a satisfactory definition except in a

roundabout or negative manner.

Perhaps the best verbal description of breadth is absence of spottiness and patchiness, or monotony. But Fig. 29D will convey the general idea better than any words. Contrasting it with 29B we find an absence of flatness or monotony. Contrasting it with 29C or 21D we find an acceptable absence of patchiness or spottiness. have ample variety of light and shade, and the spaces, if approximately equal in light and shade, are grouped together. Thus the shadows in the foreground are similar in strength, and grouped together. Again, the clump of high tree stems in the distance, on our right, are grouped. Then across our picture runs a band of lighter tone. which agreeably blends with the lighter tones in the distance on our right, and these in turn pass from right to left into the somewhat darker broad mass of foliage in the distance on our left.

We thus get ample variety of light and shade values, so that flatness and monotony are avoided, but the contrasts are not abrupt in many places. The lights and shades are grouped, and the suggestion is that of space, while all the parts of the picture belong to each other, and are felt to keep

each other in general unity of effect.

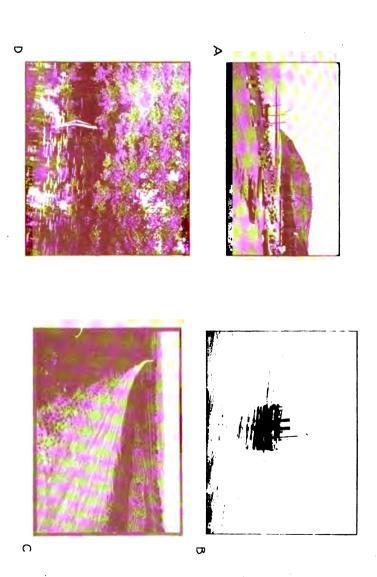
Breadth is largely a matter of direction and quality of lighting. The student will therefore do well to make a few experiments by photographing the same subject under various conditions, e.g., a front, a side, a back light; in bright sun and on a grey day, when the sun is high and when it is near the horizon, and so on. In this way he will learn to know how to select the proper lighting for any desired effect.

UNSETTLED WEATHER. (The local contrasts in the sky are hardly sufficient. Example of sky and landscape on one plate.)

Fig. 19.

E Calland.

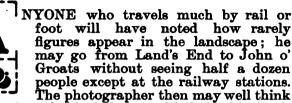




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Landscape with Figures.

By FRANK M. SUTCLIFFE.



twice before he includes mankind in his landscapes. When he does so his friends often quote Bishop Heber, and remind him that "While every prospect pleases only man is vile," or they will tell him that it would have been to the picture's advantage if the photographer could have carried a notice-board with him warning off trespassers.

Such criticism, coming often from the sweetest lips, only makes the photographer more determined than ever to succeed, and if he only looks out of the railway carriage window long enough, and does not waste his eyesight over newspapers, he will see from time to time figures so completely fitting the landscape that he will be inclined to risk breaking his legs by jumping out of the carriage window. With the characteristic caution of his race he will doubtless note in his note-book, "Figures in landscape between Ely and March, two women hoeing field of turnips, wind blowing hard." The rest is indelibly fixed in his memory. After many such entries he will find that all the notes he has made are about women and children. Men are conspicuous by their absence. Children gathering flowers appear all right in a landscape. Were men or a man introduced, it would at once be asked, "What is that man doing there?" Unless there is an excuse for the presence of a figure or figures, objection will be taken to them. Now, no one would think of being at the trouble of putting figures into his landscapes simply to give the critical an excuse for criticism. Why, then, does the photographer not always take care that mankind is conspicuous by his absence when

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taking landscapes? Because by the use of figures judiciously placed he is able to give an idea of the size of objects and also to fill up uninteresting spaces.

Time was when photographers Conventional thought that the only figures Figures. which could be introduced into landscapes were maidens in cotton bonnets and men in soft hats and smocks. And many have been at great trouble and expense in taking their cousins and their aunts with the necessary dresses and impediments, such as milking-stools and havrakes, into the country with them when they wished to make "landscape with figures." Unfortunately, dressed up models generally betray themselves. Nowadays, when the art of touching up the negative and print and the use of gum and ozotype printing is so universal, it matters little how the figure is dressed in reality. The printer can alter their clothes as he pleases; he can even add or remove figures from the negative or print at will.

When out with the camera the photographer must feel whether he wishes figures in his land-scape or not. He must say to himself, "This view wants a figure exactly there, and it must be a light figure or a grey figure or a black figure." For the life of him he may not be able to say why he wants a figure there. It is sufficient for him to know that its addition will make his photograph more satisfactory. If he has patience and waits long enough the figure will come. Then his friends will say "What a lucky snapshot; how well that figure comes there; an artist could not have put it in a better place."

The photographer who goes to work like this with the knowledge that all things come to those who have patience to wait, will be surprised how often the right figure does turn up. Sometimes it is a genial fisherman striding through the long grass—and your genuine fisherman is always a picturesque figure,—sometimes a milk-maid who really can milk will come along with yoke and milk pails complete. All that the photographer wants is the power to decide in a moment whether

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his landscape will be improved or not by the presence of a figure. No time to light a pipe and think over the matter, no changing his mind; the photographer who is not gifted with decision had better leave figure work alone.

The great improvement in cameras Rapid Plates. and plates which we have seen during recent years makes the photographer's work in the direction of adding figures to his landscape easier in some ways and harder in others. It is now quite easy to photograph horses and figures at work. Many of us have in time past picked out pretty bits of landscape which only seemed to want a team of horses and a plough or a haycart to make the pretty bit into a pleasing photograph. Such things may now be got without having to stop the work of the figures, which had to be done in the good old days on account of the long exposures wanted.

Figures in Action or Repose.

Alas, this rapidity is sometimes a fatal gift. A figure in action has a very different effect on a landscape to that which a figure in

repose has, and if the photograph is to be a success the photographer must well consider this. Take for instance a photograph of a barren moor, such as covers the face of the earth for a score of miles in all directions round here. If the wind is blowing and the clouds are rushing along a few feet above our heads, a figure in repose would be utterly out of place, but if the clouds have been dried up, as they sometimes are in September, and the sky shows nothing but streaks of red, then a figure resting by the way or a couple of sportsmen with their dogs resting may be quite in keeping with the quietness of the scene. If, however, the photographer wishes to make the moor look as desolate as it really is, then he will take care that no figure cheers it up by its presence.

If the amateur who does not care whether his photographs sell or not is bold enough to add figures, let him see that such figures are clothed in such garments as will not fix the date. Perhaps architectural photographers are the greatest sinners in this respect; they are far too fond of putting Digitized by 600

themselves or their assistants gazing at a ruined arch or a crumbling tower in their pictures. We all know these figures, wearing either slouch hats or pot hats of a previous age, with the right leg well in front and the left hand on the hip, while the figure's neck is craned up as he gazes with admiration on the ruin as long, and no longer, than the exposure requires.

Part of the Whole.

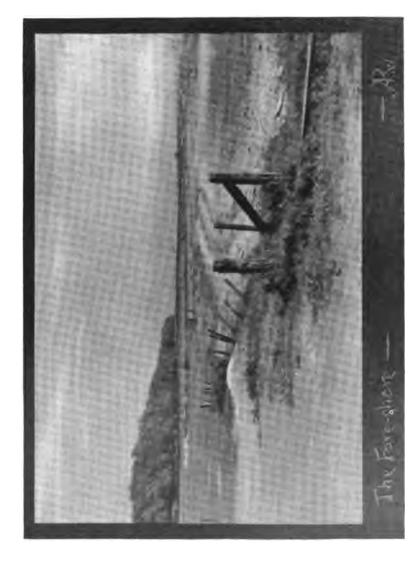
The most pleasing photographs of landscape with figures are those in which the figures appear as part of the whole, where they do not cry out to be looked at, and where at first they are not noticed. Many photographers have bewildered their minds full of rules about composition, and are not happy till they have broken all straight lines, usually in a most obvious manner, forgetting that unless their art is perfectly concealed it will

give no pleasure.

I was once showing a copy of Fig. 42, negative by the way thrown out as unsaleable, to a photographer, and he at once said "If I had taken that I should have placed the figures nearer the camera so that they would have broken the river bank." I bowed in my most respectful manner, but failed to see that they would have been better there. Why they are, where they are, I do not know, but now they have got there it seems as if their presence keeps the eye from wandering away from the most charming bit in the landscape, namely, the bend of the river immediately above them.

While a man alone is often enough to spoil a photograph, a man alongside that noble animal, the horse, or that charming animal, woman, becomes less objectionable. There is in these cases an excuse for his presence; both the horse and the woman want "minding." Among the examples given with this are some of men with horses; it needs no explanation to see that the two are better than the one. Those of us who are indoors all day, and see Nature principally in the twilight, have a fondness for silhouettes, and many a time have been pleased with the sight of figures on the sky-line; generally

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the light is too bad, but sometimes fortune favours us. I am sending some to the "Practical," but perhaps they do not explain themselves, and I do not like explaining things which are apparent to, as I imagine, everyone; not that I think it too much trouble, but I hear everyone say, "Oh don't teach your grandmother." But unless certain photographs are explained, people will make wrong guesses. The print of the trees with man and cart against the sky is not an under-exposed snapshot; it was a time exposure on a dull November day. The sun is half an inch above the cart; it was setting through the fog. If the man and cart had been anywhere else I doubt if they would have been seen at all. The fact that they will soon disappear behind the hill, like the sun, is a poetical fact, therefore the figures make the photograph more interesting than it would have been without them. Fig. 27.

The "Way Out."

When including figures in his views the photographer should take care that they are not placed in such a position as to hide "the way out" of his picture. The view of the old garden with the girl nursing the child shows what I mean; the white wall at the end of the path is "the way out" of this view, and it is by a lucky chance that the girl was not taken in front of this outlet. Fig. 41.

Grouping Figures. When dealing with more than two figures it is as well to keep the figures in masses, or the eye will be distracted by having to jump from one figure to the other. Now that we have all been made lazy by the use of hand cameras, we no longer trouble to arrange crowds of figures, but in the good old days there was a certain sense of satisfaction in ordering a lot of people about as if one had been a general moving an army; but such photographs come more under the head of figure studies, and are out of it here.

One of the things the photographer has to decide is whether his photograph is to be a landscape with figures, or figures with a landscape background. This does not always depend on how near

the figures are to the camera, but their tone, and whether they or part of the landscape is the more important. A figure may be so far off as to appear like a fly, yet be in the right place for all that. Note, for instance, the figure in the distance near the church. The church steeple is only a little one, yet this distant figure makes it appear quite tall. Fig. 26.

For certain reasons which I need not stop to explain, figures seem to fit those landscapes where the dominant object is an upright, or when placed immediately beneath the principal line (see print of

children below tree.) Fig. 30.

Figure Groups. It is seldom wise to let all members of a group look at the camera. In fig. 30 several members of the partywere told to watch the boy seeking a bird's nest.

An exception.—In fig. 33 the figure is allowed to look towards the camera, for the camera may in such an instance be supposed to take the place of a friend or companion, or indeed the farmer who objects to having his long grass trodden down by flower gatherers. This case illustrates the use of a tripod and time exposure.

With or Without Figures? Many photographers will have noticed how disappointing roadway pictures may prove, the road sides making awkward triangular spaces, reminiscent of one's school days. By waiting for a suitable figure to put in an appearance, a vast improvement may frequently be effected. Compare figs. 31 and 32.

Patience. Fig. 28 illustrates the reward of patience. Being out with a companion we located this spot, and waited for a figure to turn up. Seeing this rider approaching we asked him to turn his horse with head up stream and permit him to drink.

"Tipping The photographer should pay attention to this point. How much to give is often a difficult question.

Sometimes a polite "Thank you very much, I am

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afraid I have kept you a long time" is the only possible remuneration. At others, it is permissible to offer tobacco. When to offer money, and how much to offer, are sometimes difficult questions. Some of the fisher women about here at one time would have done more for a few sweets than for money; the men-folk would have preferred money.

It is unwise to promise to send Promising copies to your figures, for it may Copies. happen that the negative is not although photographs And worth printing. sometimes are greatly valued by one's models, they generally prefer photographs representing them in their Sunday best, and Solomon in all his glory was not arrayed like some working folk are on Sundays.

Where Photography Falls Short of a Painter's Ideals.

By HORACE MUMMERY.

HE power "to see ourselves as others see us " might, if we possessed it, prove anything but a pleasant one-yet we are always a little anxious to know what other people think of us. and an opinion, if it is not merely the outcome of spleen, coming from an outsider, i.e., one who is not of our camp, has some

interest and perhaps use. It is with such feeling that I write this article.

Landscape painting is, comparatively speaking, a recent form of art. It is true the early painters found a little patch of country with blue sky above it a pleasant foil to set behind a Madonna or Saint, and some of them painted this background as if they loved it. But not till the 17th century was landscape considered of sufficient importance to constitute the chief interest of a picture. The close of the 18th century saw the dawn of modern landscape; the era of crowded cities had begun. The noise, bustle, and smoke set men longing for the fields, and made some love Nature as she had Digitized by COC

never before been loved. I need not trace the history of landscape painting, suffice it to say that its keynote is this intimate love, the feeling that there is in field and forest, moor and sea, and in the great sky above, the counterpart of the passions. hopes and fears, that fill the breast of the spectator. Nature has her moods. The highest ideal of the painter is to seize her at her best, not merely to portray her in her everyday beauty, but to show how she looked perhaps for 5 seconds only in the 24 hours. The power and knowledge required to do this have been given to very few. Such painting being the most emotional rendering of landscape receives most the impress of the artist's brain, and is the result of his individual vision, its chief medium of expression is colour. Turner, Corot, Constable, Millet and J. Maris suggest themselves at once as artists who have produced such work, and though following distinct paths of their own, they were all alike in painting their pictures away from the scenes portrayed, each in his own way giving his own impression of Nature.

Though it is impossible to draw any hard and fast line of demarcation, we seem to feel that there is a great deal of painting that is separated from such work as I have named, not merely in quality of genius, but in difference of aim. It is frankly a simpler rendering of Nature, which may be poetical, but its basis is realism, showing selection rather than composition, and is suggestive of having been painted in the open air. Most of our present-day landscape comes under this heading, and stands related to the great school much as in poetry a

lyric does to an epic.

The same love of Nature has called yet another class of workers into the field—the photographer is abroad. The position of photography as an art offers a subject of debate, and has caused no little wordy warfare between painter and photographer. Whatever may be said, the fact remains that of late years a number of energetic and earnest workers have come upon the scene resolved to push forward and extend the scope of pictorial photography. The result of this effort is often before the public, and to show some points in which it

S. Cardwell.

JEAN.

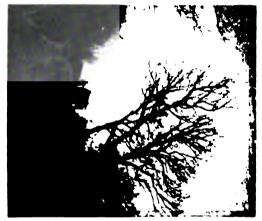
Fig 25.

A. E. Radford.

STUDY.

Fig. 24.







Where PHOTOGRAPHY FALLS SHORT of a PAINTER'S IDEALS.

falls short, at anyrate from a painter's point of view, is the object of this note.

Once it was the ambition of the photographer to get as much detail as possible. Now there is a danger of going to the opposite extreme of an excessive and injudicious suppression of detail, the result being emptiness. Often in work displaying much artistic feeling there is in part, or all over, such a bald empty appearance that solidity is entirely lacking, and we have only the ghost of a landscape. In some processes, especially the gumbichromate, there is a further rottenness of texture that makes it even more unconvincing. I wonder sometimes how such a fault escapes the notice of the worker, and whether the tendency amongst photographers is not to get used to it. I have noticed in black and white reproductions of impressionistic sketches that were quite satisfying in colour, the same emptiness, the colour evidently supplying an interest that excused the slightness. A moral may be drawn from this. The softness of edges, the general fuzziness and uncertainty that are too much in evidence to-day, are blemishes in photography that need not exist. The same thing applies to a great deal of painting, especially amongst the younger men. The fact is we have all been smitten with certain dreamy poetic work, that indeed we cannot love too much, but that we need to understand better. A really careful analytical study of these masters reveals how much decision governed their softness, and how valuable are the occasional sharp touches that give accent and precision—the blurring of a form and the saving it by a firm touch is the most difficult thing in painting. Turner was a master of such accents. In many of his later pictures you may discover accents of light and dark, small enough in themselves, that when covered over make the whole picture suffer.

Closely connected with the shortcomings I have dealt with is that of false tone values. It used to be a constant charge against photography that it was unable to render values truly, but this is a matter in which there is visible a marked improvement. I think the most carping critics will admit

this. True values are the making of a picture; nothing is really convincing if they are wrong, but they often are wrong, and sometimes apparently by choice. Many photographers, and painters too for that matter, are bitten with the desire to get things "tony," that is, simplified by being brought more together; this produces a certain gloom that looks very learned and impressive, and is rather fashionable just now. Well, give it a rest, for it's

being overdone.

Photography is found wanting by the painter often enough in the matter of composition; the photographer certainly has not the facilities for alteration that the painter has; he must take Nature as he finds her, and Nature, I admit, is not good at composition: but it is surprising how often a point of view from which things come right may be found by patiently walking around. Sometimes we are deceived by a place that looks very much like making a picture, but the interest may be in association, or suggestion, and quite unpictorial. The faults that I think are most to be guarded against are certain peculiarities and quaintnesses that please at first sight by their novelty, notably the truncation of objects. A picture has got to end somewhere, but it is very important what its edges cut through. For instance, trees cut off above and below running right across the picture, small slices of objects on the edges or in corners, are unpleasant. A picture must not look merely like a patch cut out of the landscape; you ought not to want any more of it, to right or left, above or below; it should be complete and self-contained—a quotation from Nature that does not need any context. Whether it be a range of mountains or a haystack the same law applies; however much or however little the picture contains it must leave off well. Lines running out of the picture are a great worry to us all; they suggest Euclid's lines that in school we were always producing from A to somewhere else; the eye follows them out of the picture, and we wonder where they are going to. Fidgettiness we learn to forgive in our friends sometimes, but never in a work of art. The subject of strong and weak places in a picture I need not go into-it is a

Where PHOTOGRAPHY FALLS SHORT of a PAINTER'S IDEALS.

probably familiar to all the readers of this journal but it is something often forgotten in practice. Generally speaking, anything that in form or arrangement looks peculiar, grows when the picture is hung on the wall, into something positively annoying. Those in search of novelty should exercise themselves in some other direction. question of what is pleasing or displeasing in composition has been settled long ago, and the laws governing it seem pretty constant. Some photographs that have been in evidence of late suggest having been cut down to make them look peculiar. and seem to have been mounted in much the same spirit. The appeal of a good work of art is a quiet one: the picture that cries out from the wall "Look at me" finds its ultimate place in a dark corner or Affectation is the curse of the lumber-room. modern art. Another matter that catches the eve of the painter is the excessive perspective in receding surfaces, and the exaggerated size of near objects as compared with distant ones. The latter is not always displeasing, but violent perspective is. Connected with this is the deep foreground: a high horizon and narrow strip of sky do not look right to a painter, except where the ground is inclined, and when they occur in a picture of flat country or sea they are apt to suggest a rising plane.

Such are the thoughts that pass through my mind as I recall the exhibitions and pictures that I have seen from time to time. My subject has dealt only with photographic shortcomings; I ask my readers to remember this, and to forgive if they feel that I have been unjust. At any rate there are two sides to every question, and perhaps some photographer may be bold enough to declare "Where Painting Falls Short of a Photographer's Ideals."



How to Make and Use a View Meter.

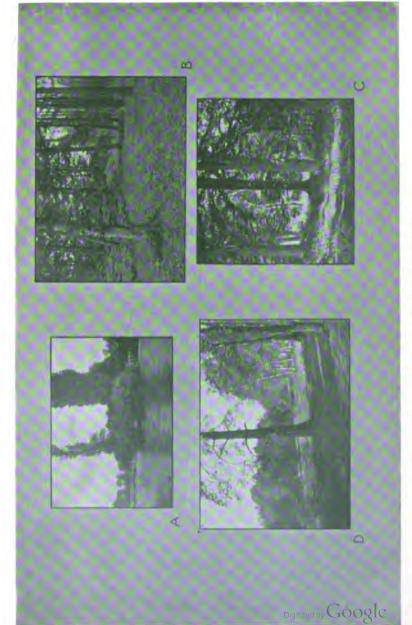
By J. H. WILSON.

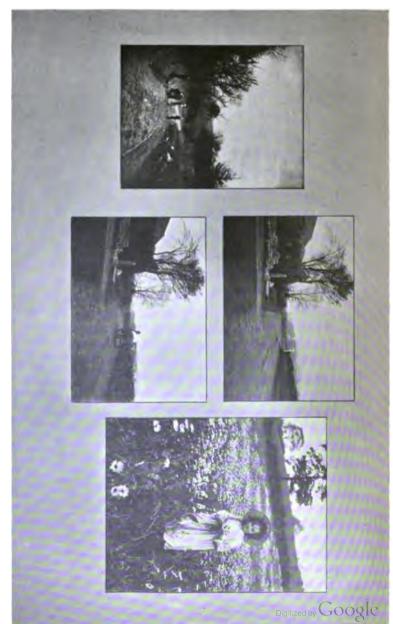
IRST, a few words to the reader who has never known the comfort and convenience of a view meter. By its aid we can see at a glance exactly how much view or subject is included with a certain lens from any position we like to take for the moment. Moreover, we see our picture

the right way up. We have no tripod to carry about, no focussing cloth to bother with; just a bit of card held up to the eye, and the picture is shown in an instant. It is therefore an easy matter to move to the right or left, back or forward, sit or stand, and note how these changes of view-point affect the quantity of subject included, and also how the composition or arrangement of subject is thereby affected. Again, suppose only one position for the camera is possible, then we can compare the effects of different lenses when used in this position. Once again, we can go over the ground without the burden of the camera, etc., and thus see exactly where best to carry our baggage when the time for taking the photograph comes round. But enough has been said as to advantages. reader will really only appreciate a view meter when he has carried one for a little time. Therefore the best thing is to tell him exactly how to make one for his own needs.

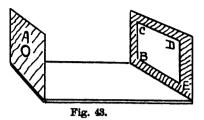
By way of example we will suppose he is using a quarter-plate camera with three lenses of 5,7 and 12-inch focus respectively. He can then easily modify the procedure to meet his own special case. Practically our quarter-plate gives us a picture space of 4 × 3 inches, so we shall work on that

hypothesis.





The little apparatus we are going to make is shown in Fig. 43. By putting the eye to the peephole, A, and looking through the frame.



BCDE, we see our picture. Clearly the quantity of picture depends upon the size of the frame opening

and its distance from the peep-hole.

Now, the first thing to decide is the size of the apparatus, so that it may be large enough for practical use and small enough for the pocket. Suppose we fix on the distance between the peephole A and the frame BCDE as 3 inches. Take a piece of paper and rule a straight line 3 inches long (AJ, Fig. 44). This is the base-line of the instrument, and corresponds to the shortest focus of our lens, viz., 5 inches. Now divide this line into five equal parts. Call these units. At J draw the line KL perpendicular to HJ and make it as many units long as the long side of our plate; thus KJ and JL are each two units long.

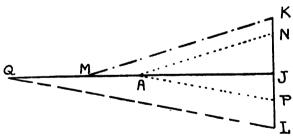


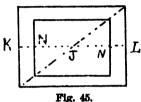
Fig. 44.

Then for our 5-inch lens the distance between A and BCDE is three inches, and the size of the opening BCDE is 4 units by 3 units. The three pieces of card forming the apparatus are hinged together by means of glue and tape. Of course, the position of A is opposite the centre of the opening. The size of A is arbitrary, and may conveniently be about 1-inch in diameter.

Now for a second lens. Suppose this is 7 inches long. Then produce the line JA to M, making AM 2 units, i.e., MJ is now 7 units. Join MK and draw

AN parallel to MK.

Now take a second card the same size as that used for the frame BCDE. Lay the first on the second card and run a pencil round the opening (Fig. 45). Now in the second card cut a similarly proportioned opening, but this time making the long side twice JN.





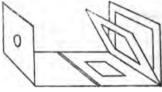


Fig. 46.

The second frame is hinged to the base in the same way as the first and close to it. If we now look through A, the larger opening shows us the quantity of view with the 5-inch lens, and the card with the smaller opening gives the view with the 7-inch lens.

Now for the 10-inch lens. Procure AM to Q so that QJ is 10-inch long. Join QL and draw AP parallel to QL. Take a third card and cut a central opening, but this time the long side must only be twice JP. The height is reduced in proportion, of course. This card is hinged close to No. 2 card, and when seen from A gives us the view of the 10-inch lens. Fig. 4 shows the apparatus for the three lenses.

It is convenient to blacken the three card frames. Also we can get a better idea of the light and shade effect which our photograph will give us if we cover the peep-hole A with a bit of blue sheet gelatine such as may be found in a box of Xmas crackers, and view our picture in monochrome blue.



Colour v. Monochrome in Landscape.

By HENRY WHITE.

EW if any topics are more important than this for the would-be pictorial landscape photographer. Usually the camera man's mind passes through three stages. First, he notices with surprise that the bright yellow buttercups among the dark-green grass come out as black

dots. The white clouds against the blue sky give him blank paper in his print. Next he revels in orthochromatic plates and colour filters, which at first seem to solve his troubles. But presently there comes a third stage, wherein he begins to feel that the "scientifically correct" monochrome translation of colour yet leaves out "a something"

which seems essential to the scene.

For instance, we may have a golden corn field fringed by a green hedgerow. It is quite possible that the "scientifically correct" rendering of this bright orange-yellow and quiet green may be such as to bring these two colours on to our plate as practically equal shades of half-tone or grey. nature the life and brightness of the colour contrast was largely the charm of the scene. But science has wiped out this contrast, and with it goes the charm of the scene. What is more entrancing than the autumn tints of changing foliage? The rich copper reds, the warm brown and sombre greens, each enhancing the other. Yet it is quite possible that these various colours may have approximately equal values. It therefore behoves the pictorial worker to bear in mind the difference between colour contrast and their monochrome "values."

To give one more instance. We may suppose a grey garment—light or dark as the case requires—to be figured with flowers in red, blue, green, yellow, or some other bright colour. It may easily happen that the grey is of just the right degree of lightness or darkness so as to be exactly equal to the brightly-coloured flowers. A correct trans-

lation of this would of course give a uniform grey, and the pattern would be lost. Need one say that a patternless rendering of a patterned garment would not give a quite satisfactory impression of the original? The case is exceptional and perhaps extreme, yet not impossible, and is quoted to show the effect of pushing scientific correctness to its

legitimate limits.

The conclusion we may draw is that scientific truth is not necessarily pictorial truth. Thus in rendering our red flowers on the dark-grey ground the pictorial worker would depart from scientific accuracy and show the bright red colour as lighter, more insistent than the quiet and comparatively colourless ground. The same principle may at times be applied in landscapes. By using light or dark colour filters, as the case demands, we may legitimately depart from scientific truth to gain pictorial truth.

The photographer should ask himself "What is the dominating colour of this scene, yellow, red, green, etc.? Do I wish these to become stronger or weaker than their probably scientific rendering requires and so on?" He will then select his light or dark colour filter according as his desires may

suggest.

This may be denounced as rank heresy by our purist friends. But we may remind them that it is what the painter has always done, and doubtless always will do, because it is the only way of conveying his personal impressions as to colour: similarly the etcher or engraver is upheld by his fellow-craftsmen when he also emphasises or suppresses colour values, so as to convey better the sentiment of colour contrasts.

Again, we must not forget that for some eyes certain colours have a greater charm than other colours have. This is no more a question of colour blindness than the preference for one key over another betokens deafness.







Fig. 34.

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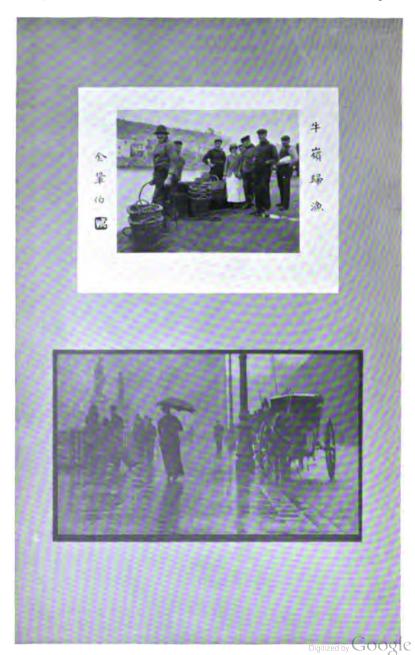


Fig. 36.

W. S. Crockett.

Landscape Hints.

By VARIOUS CONTRIBUTORS.

OCUSSING. This is certainly one of the most important subjects for the pictorial landscapist. Indeed many an otherwise good picture is spoiled by neglect of it, while others owe much of their success to its tasteful adjustment.

The beginner may ask for some rule of guidance. But no general rules can safely be offered. So much depends upon the subject selected, the object desired, the taste and experience of the worker, the printing process to

be employed, etc.

At first the beginner is disposed to treat all subjects alike and try to get everything in sharp focus, for he is fascinated at the marvellous defining power of the lens. He forgets that the eye is not a fixed instrument like the lens, and that the eye has an iris diaphragm which is constantly expanding and contracting as we look at one object and then another. He forgets that the eye ball is turned in one direction and then another as we change the lines of vision. He forgets that the focal length of the eye lens is continually being altered as we look at objects at different distances. Finally he forgets that one's optical or mental attention is only given to one small part of the scene at once. For instance in an open landscape we may be attracted by a beautiful patch of coloured flowers on the hill side and not notice the cattle a few feet away or the mountains beyond. These are only to the eye mere vague forms, patches of light and shade. It is not until eye attention is given to them that we observe their shapes and forms, and by this time the flowers have slipped out of focus.

Hold up a pin 12 or 15 inches from the eye and focus the eye and attention on the pin's head. You will not at the same instant see clearly the houses

on the other side of the street which form the background for the pin. But instantly you begin to think about the houses your eye accommodates or focusses the houses and the pin fades into a greatly softened outline. The instance is of course extreme. We do not include in our landscape objects as near as 12 inches and 100 feet. But the principle is the same. We may include foreground foliage at 10 feet, middle distance, buildings at 100 yards, and mountains two or three miles away.

Now by using a small enough stop we can get all in sharp focus, but the question is do we want to get all in sharp focus? This depends on what our aim is. If we wish for a purely topographic record of bare facts we may wish to have all parts sharply defined. But if we wish to retain our own mental impression or a pleasing picture we shall not want

all parts equally sharply defined.

In that case how are we to discriminate as to which parts shall be in and out of focus? This depends in turn upon what we wish our picture to

say, the impression we wish it to convey.

Arrange your picture on the ground glass, so that you know exactly how much matter is to be included. Now adjust your view meter to agree Then shut your eyes for two or three with this. seconds and open them for about † of a second and close again. Ask yourself "what did I see during that momentary glimpse?" "The whole picture" you reply. Yes but what part, what feature of it did you notice in particular? You cannot perhaps answer this, so must try the experiment again, and again until you are quite sure in your own mindnot which is lightest, or darkest-but which seems of most importance, and which gives it the special attraction in your eye.

Again, look at your subject with half-closed eyes, and ask yourself the question "why do I wish to photograph the scene? what special feature or part of it attracts my attention?" It may be some beautiful mountain forms in the distance, some building in the middle distance, a figure in the foreground, a play of light and shade in some particular place or spread all over the picture, and so on. Now whatever it may be that chiefly

attracts your attention, this object or feature should be sufficiently sharply defined on the ground glass so as to prevent any confusion, thought, or effort of the eye to see clearly. It may or may not be sharply defined, but it should not be so out of focus as to set us wondering what it is. We may now examine our picture on the ground glass, first focussing with a large stop and getting into sharp focus the chief object of the picture. By way of rough example, let this be a middle distance building, foreground foliage and distant hills. The question now is do we wish to show every brick and stone of the building, or only an agreeable general impression of the building. A turn of the screw will enable us to see just how sharp it should be for most agreeable results. Make up your mind about this before troubling about any other part of the picture. This done, then look at the foreground and distance. Now by changing from the large stop to one of next smaller size, you will be able, by a turn of the focussing screw, to retain the desired degree of sharpness in the building, and at the same time get your mountains slightly less sharp than the building. This relationship of building and mountain background being satisfactorily settled, we turn attention to the foliage foreground. Probably we must use a still smaller stop, and again adjust matters so as to retain the building just as sharp as we wish, the mountains slightly less sharply defined, and at the same time get the foreground foliage sufficiently sharp so that the eye may see it and know quite well what it is without being especially attracted by it.

By this time the reader will have arrived at the guiding principle of putting the object of chief pictorial interest in sharpest focus, and other objects in subordinate degrees of definition according to their pictorial importance. The expression "sharpest focus" in the preceding sentence does not mean the sharpest possible, but simply sharper than any other part of the picture. Indeed one may say that for landscape work it will be found the exception rather than the rule to have the sharpest part of the picture quite as sharp as the lens will give. Because the normal eye does not

desire such microscopic definition as a modern lens will give. From the pictorial point of view it is as much a mistake to have any part too sharply defined as it is to have it too much out of focus.

l. P.

The Foreground.—A famous strawberry grower when asked for his secret said there are three rules to observe. First, water them; second, water them generously; third, water them frequently. might paraphrase them and say that in landscape, Pay chief attention to the selection of your foreground. Expose for the foreground. for the foreground. A brief glance at the walls of any exhibition of landscape photographs will show that in a large majority of cases it is the foreground portion that is of chief importance. We can see this at once if we cover up the foreground, for then we see how insignificant the other parts are, in many (but not all) cases. When we look at a scene, the eye travels from part to part so quickly that we are largely unconscious of this, and so we do not realise the relative sizes of near and distant objects. Hence in our photograph we find ourselves much surprised and disappointed when some distant mountain comes out as an insignificant little mound. J. H. J.

Are we all idealists? Like the man who talked prose and did not know it, are we not all idealist in our photography? That is to say, we have some ideal standard which we wish to reach. One's ideal may be an impressionistic, softly diffused style; another aims at realistic rendering of microscopic detail. A third strives to make his work look as unlike a photograph, or as like a charcoal sketch as he can. Some one else goes in exactly the opposite direction. Nor can any one prove his method the only right way. As Hunt has tersely said: In art one may just do as one pleases without asking any one's permission.

There are many ways of regarding and rendering landscape scenery, and each may be advisedly followed from time to time. The common error seems to be that of selecting some one style and treating all subjects in that style, instead of varying the treatment to suit the subject.

W. H. B.

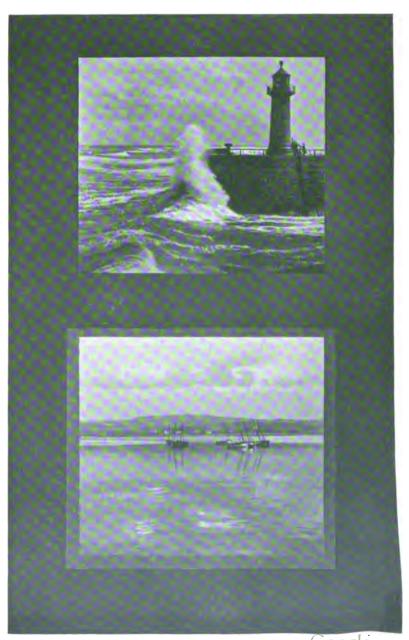


Fig. 38.



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Wind is one of the landscapist's best friends and worst enemies. It is his friend because it blows the clouds along and gives him an endless variety of cloud effects and lightings. Wind-bent trees, sails, etc., are often far more picturesque and pictorial than when at rest. But the vibration of the camera due to wind is not a desideratum. Sometimes it is

sufficient to interpose one's body on the windward side—an umbrella, if at hand, may be used to keep off the wind. still better dodge is to obtain about 3 feet of round solid rubber, about as thick as a cedar pencil. One end is looped up and tied with fine twine. This loop should be big enough for the foot to go easily in front of it. To the other end is attached a small spring swivel by means of a fresh small loop. The head of the tripod screw is pierced with a hole sufficiently large to take the swivel. Thus the rubber band hangs down centrally between the tripod legs. One foot is now passed inside the large loop at the lower end and pressed down upon the ground. The length of the rubber is so regulated that when the foot in the loop is on the ground a tirm tension is obtained and the camera is held firmly. This plan has the advantage of setting one's hands free to battle with the flapping focussing cloth, and is particularly useful when dealing with sea storms and wave subjects, as it enables one to hold the focussing cloth with one hand, the exposing bulb with the other, and at the same time keep one's eye on the subject. Another



Fig. 47

plan is to tie a string round a large stone or brick and suspend this from the tripod head. Another worker suggests a small net into which shingle may be put for the same purposes. F. C. L.

Interest versus Pictorial Quality.—When selecting a subject for photography it is important to discriminate between any personal interest or association which we individually may possess, and

the pictorial possibilities which the scene possesses for those who have not any special memories or knowledge of the scene or locality. For example, we may have enjoyed some pic-nic or met a valued friend, or made a prized acquaintance in a certain place, and so assign to it a personal association. Or, again, a building or scene may have some stirring historic or archæological interest. But photography takes no account of such mental tinge. Therefore it is well regarding such favourite spots to ask oneself the question "How should I regard this yiew if I had never seen or heard about it before this moment?" It is the "first impression" that will appeal to those who see the photograph.

Halation and Backing are two extremely important subjects for the landscapist. It is often thought by inexperienced workers that backed plates are only required for architectural interiors. But extended experience shows that the worst cases of halation (and the corresponding great need for backing) are met with in woodland subjects where small patches of bright sky are seen through small openings among the leaves or bare branches. The sparkling patches of light reflected by a slightly ruffled surface of water will yield strong halation effects. The sunlit white-washed walls of cottages also call for watchful care. Halation is more likely to show itself when the air is hazy with dust or fog, and under-exposure followed by prolonged development is favourable for its production. T. H. B.

The same scene under various conditions of lighting may look vastly different. It is not only a question of direction but of quantity of light. Thus a somewhat common-place building or street scene, or group of trees may look quite "ordinary" in full daylight, and yet take on an unexpected charm when seen by moonlight. One need not quote Scott's well-known lines on this subject. What is true of Melrose is true of all scenes, in the sense that there is a best time of day or night, a best direction of lighting, a best time of year, and so on. Though, of course, it does not follow that conditions other than the best may not have their own special

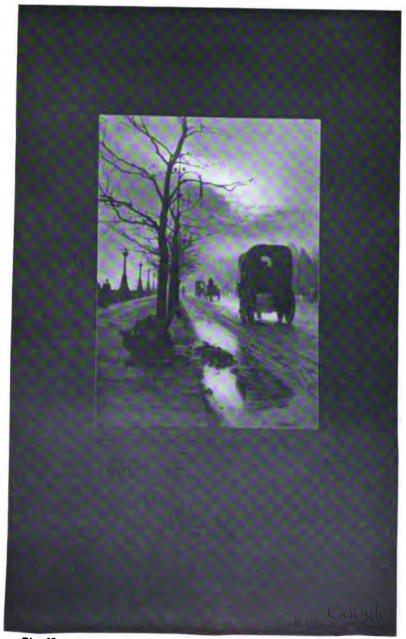


Fig. 40.

W. J. Appleby.

Fig. 4L



Fig. 42.

charm. But the artist will always strive to view his subject under several different conditions so as to find the one which helps him most in his ideal.

Rain.—The camera should be protected from rain, sea spray, etc., or the wood-work will swell and the moving parts work very stiffly or "jam." A thin and amply large waterproof focusing cloth is recommended. It takes up less room, is lighter than the same are in velvet, and serves to protect the camera in showery weather. Care must be taken to protect the lens from rain drops falling on the glass, or they may entirely spoil the image.

An Umbrella is a very useful thing to have with one. In sunshine it is useful to shade the lens. In wind it helps to reduce, if not prevent vibration. In rain its uses are obvious. It may be easily carried along with the tripod, by means of straps or a couple of wide elastic garter-like bands. When the tripod is in use the umbrella should be fixed to one of the legs, and so need not get lost or forgotten.

A. M. C.

The colours of nature are apt to mislead even the experienced worker at times. The small scale image as seen on the ground glass is often such a charming object that for a moment we may fail to remember that our print will be robbed of this colour charm. It is an excellent plan to have a dark blue-grey lens cap to slip on the lens. This will in general serve as a reminder as to our ordinary monochrome Another plan is to carry a bit of blue rendering. glass in one's pocket and view the scene through this. Yet another good plan is to cover the peephole of our view meter with a bit of dark blue transparent gelatine. At many sea-side places and in the streets of London, etc., one may buy for a few pence a pair of "nippers" containing blue glass. When a choice offers, select the moderately dark greyish blue rather than the violet tinge.

Front Lighting.—Some of the most pictorial results are obtained when the sun is more or less towards the front. This is especially the case in woodland scenery, rustic figures in the field, fisherfolk, boats, and cottage scenery. Some form

of lens or sky shade is highly desirable. But if this be forgotten, one may use a hat, umbrella, the hand, the lens cap, etc. Sometimes one may avail oneself of the shade of a tree trunk, branch, building, etc. For brilliancy of effect a lens shade is advisable at all times, but in no case should the direct rays of the sun be allowed to fall on the front glass of the lens. Care should be taken to keep the surfaces of the lens glasses clean and free from dust, for diffused light falling on a dusty lens will yield a general fog all over the plate. G. D.

Backgrounds.—Quite a serious proportion of interesting snap-shots are spoiled as pictures by reason of having quite unsuitable backgrounds. This subject has already been touched upon, but is again here referred to in order to draw special attention to it. The golden rule is that the background must not show a greater contrast of light and shade than does the principal part of the picture. For instance, a figure in black and white costume must not be against a background which has a stronger contrast of black and white, though it may have a still stronger black or a still stronger white, but not both together. Again, the background must not be in sharper focus than the principal object of the composition.

In general one may say that the background should be just as far out of focus as you can get it without producing irritating blur or confusion.

Focal Length of Lens.—In selecting the lens bear in mind the following points:—A narrow-angle or long-focus lens gives more agreeable proportions, and generally is preferable for pictorial effect. A short-focus or wide-angle lens gives dwarfed distances in comparison to the size and proportion of the foreground objects. It has relatively a greater depth of focus or focal field and, of course, includes a wider angle of view, consequently objects are more in number, but smaller in size. C.A.L.



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Landscape Photography with a Kodak.

FRANK ROY FRAPRIE.

HERE was a time, not many years ago, when I would have been ready to say to all comers that if one wanted to take good landscape pictures it was necessary to use a camera with a ground glass and tripod. I tramped out in all kinds of weather with a heavy load of plates, stand camera, tripod, and focusing

cloth, and spent hours studying effects on the ground glass, moving the camera from place to place, and would come back at night exhausted with the physical efforts necessary to get a few pictures. Of course in this way I got pictures which were satisfactory to myself, whatever may have been the opinions of others as to their artistic merit. Consequently when I left America for an extended stay in Europe I packed up my old standby, the Telephoto Poco, and took it with me. I carried it for a while and made some good pictures with it, but it was extremely bulky and heavy to carry, and I had difficulty at times in getting plates of American sizes. Besides, I rarely got plates of the same maker or speed twice in succession, and they were not always as fresh as desirable, especially the orthochromatic ones. Again, when I ordered plates cut to English sizes by foreign makers, they nearly always used the Paris inch or some other foreign standard, so that the plates were not quite large enough to be held by the rebates of the plate holders or printing frames. These manifold considerations were influential, when I started on a tramp through the Tyrol, in deciding me to carry with me a small kodak. It was not the best choice which I could have made among the many varieties, for the finder was very small and not brilliant, but it went handily into my pocket or rucksack, and the rolls of films were of light weight, an important consideration in mountain travel.

I made a large number of exposures with this apparatus between Munich and Venice, and on the same trip I carried a small French magazine camera, using extra thin glass plates of the same size and weighing about one-third as much as ordinary plates. While the lens was far superior

to that in my kodak, the pictures I obtained with it would have been no better if the negatives had been perfect, while as a matter of fact most of them were badly disfigured by pinholes. These were caused by the dust arising from abrasion in the operation of shifting the sheaths from front to back, and have been prominent in all pictures which I have taken with cameras provided with changing boxes. With my kodak I used N. C. films, which had then just been put on the German market, before they were used in America to any extent. I found them very useful in the mountains, where the haziness of the distance rendered all the pictures taken on glass plates unprintable as far as the mountains were concerned.

The greatest difficulty which I had expected to have with the kodak was in the composition of my pictures, but this did not turn out to be nearly as much as I had expected, and I was soon able to determine the general effect of the lines and masses of the landscape very well. I had also the great advantage that I could carry my camera ready for use at all times, and peep into the finder every now and then without delaying my progress, instead of having to stop to set up a tripod and study the scene on the ground glass only to finally decide that I did not want the picture after all. I secured a number of fine pictures on the trip, and among them were the only ones taken during a stay of more than a year in Europe from which I have thought it worth while to make enlarged negatives. During this time I used three different styles of plate cameras, so that I consider that film photography scored a decided point.

So much was this the case that when I decided to go to Europe again in company with a number of photographers, I not only carried a 3 A kodak myself, but advised all members of the party to do the same. As a result we all carried film cameras, and there was only one plate camera in the party. This and an Al Vista which one member had were abandoned within two weeks of landing, and we used nothing but kodaks thereafter.

My 3 A had a brilliant finder, and I soon discovered that I could compose as well with it as on the ground glass. I used it with great satisfaction and succeeded in getting a large quantity of excellent pictures. Many of them were scenes of street life, fleeting glimpses that never could have been got with a stand camera. Far more than with

us, the camera is an object of interest to the people of Europe and Asia, and, once you have attracted their attention, all hope of getting a natural picture is gone. Your figures will insist in occupying the place in the landscape which they want,—that is, as close to the camera as possible,—and in vain you try to make them go about their business so that you may catch them in a natural position and in the desired place. The only way you can do this is to snap them before they see the camera, and this is possible only with an inconspicuous, rapidly-operated hand camera.

We found our cameras useful not only for outdoor work, but also in several museums where we were allowed to photograph. I have a number of good negatives of statues and architectural ornament made in Greek museums, in spite of the natural uncertainty as to the actinic value of

the light in the interiors.

This brings me to another point. Naturally in traveling from the north to the extreme south of Europe, under the blazing sun and cloudless sky of Sicily and Greece, the question of exposure became an important one. In order to be sure that we were right, it was necessary to develop some at least of our films on the spot. We did not care to trust them to the tender mercies of professional photographers; darkrooms were hard to find, and we would have been in difficulty if it were not for the developing machine. We had three in the party, and they did not get rusty for lack of use. We developed many hundred rolls under all conditions, in all climates, with all kinds of water, and often under very unfavorable conditions as to time and room, and not a single roll was spoiled or poorly developed by any fault of the machine. A few rolls were spoiled by carelessness in not pasting down the end of the roll or not putting enough developer in the machine, but a little expe-There were in our company other rience cured that. camera users not directly associated with us, and so I had the opportunity of comparing their films developed by local photographers with ours. My earnest advice as the result of this inspection is, take a developing machine or bring your films home to develop them. There are many places where films are developed satisfactorily, but there are almost as many where they are ruined, especially in the smaller places. It would almost seem as if certain professional photographers who sell views deliberately spoiled amateurs' films to increase the sale of their own pictures.

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On the whole, I am perfectly satisfied that as good landscape pictures can be taken with a kodak as with a plate camera, and shall always prefer it on the ground of portability.

Bibliography.

THE following are the most useful books at present obtainable on the subject of landscape photography. Any of them will be sent postpaid on receipt of the price.

ROBINSON, H. P. Letters on Landscape Photography. 5 x 7 in.; pp. 66; illustrated. 1888. Paper, 50 cents.

English. Contents: Art in Photography, The Photographer's Control over His Subject, The Choice of Subject, On the Mountain, Various Subjects, Figures in Landscape, Another Day Out, A Talk in the Billiard Room.

WALL, A. H. Artistic Landscape Photography. 51 x 9 in.; pp. 171; illustrated. 1896. Half canvas, \$1.75.

English. A series of chapters on the practical and theoretical principles of pictorial composition, well illustrated with helpful pictures.

HARRIS, G. T. Practical Landscape Photography. 42 x 7 in.; pp. 118 and index; illustrated. 1902. Canvas boards, 50 cents.

English. A handbook based upon some twenty years' experience, dealing with the subject upon broad and practical lines, giving processes and formulæ where necessary.

Hodges, John A. Pictorial Landscape Photography. 5 x 8 in.; pp. 111; illustrated. 1901. Cloth, 75 cents.

PHOTO-MINIATURE, THE, No. 25. Landscape Photography. 1901. Paper, 25 cents.

A little book about landscape from the common-sense point of view. Composition, selection, and arrangement of outdoor scenes. Digitized by GOOSI

Notes and News.

ANNUAIRE GÉNÉRALE ET INTERNATIONAL DE LA PHOTOGRAPHIE. Directeur: Roger Aubry. 13e année. Paris, Plon, Nourrit & Cie, 1904. Price, post free, \$1.50.

This annual of nearly eight hundred pages is by far the largest that has come to our notice, and the contents are extremely interesting and valuable. One finds here matter enough for all tastes and information on the widest possible variety of photographic subjects. The volume opens with an amusing little skit in the most approved burlesque style, with several musical numbers. Then, getting down to more serious affairs, we find a review of the progress of the year in photographic optics and chemistry, giving a very complete account of the advances which have been made. Then follow a number of very thorough discussions of recent work in the applications of photography to scientific and industrial purposes, which are succeeded by a history of the photographic movements of the year, including conventions and expositions.

The second part is devoted to a number of very interesting articles on various subjects, including radium, balloon photography, medical photography, projection in color and stereoscopically, the telegraphing of photographs, etc. The third part contains lists of the photographic societies and publications of the world. These are naturally very complete and full in the French division, but the American lists leave much to be desired. On the whole the book offers more photographic reading in French than can be found in any other place for the same price, and we cordially recommend it to our readers.

In addition to the reading matter the book contains a very large number of excellently reproduced illustrations, many of which are by workers whom we are accustomed to recognize as leaders in pictorial photography in France, and show great artistic merit. A large number are full-page inserts, and several are nicely mounted.

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L'ÉPREUVE PHOTOGRAPHIQUE. Roger Aubry, directeur. Paris, Plon, Nourrit & Cie. Price monthly, 75 cents, post free.

Nos. 2, 8, and 4 of this remarkably fine collection of heliogravures are fully up to the standard set by the first number,

which we reviewed some time since. The contents are as follows:

No. 2. Chez le brocanteur . . Alb. Yvon
Bords de Loire . . . A. Malle.
Crépuscule . . . Hermann Linck
Marine hollandaise . . Personnaz

The first is a fine genre, the second and third landscapes (the latter being an especially masterly piece of work), and the fourth is a marine, a little hard, but still very fine.

The first and fourth are exceptionally fine pieces of photography.

No. 4. Sale temps . . . L. Misonne
Le Reître Taponier
En Forêt Chéri-Rousseau
Les Charrons . . . A. Gilibert

Each of the four pictures in this number is a work of art. Possibly the fourth in happy choice of opportunity and good composition is the strongest, but it is difficult to select the best among such good pictures.

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The Eastman Kodak Company favor us with a copy of a little book entitled "In Korea with the Kodak," by Robert L. Dunn, war correspondent for Collier's Weekly. It details the photographic adventures of the writer at the opening of the war, when he photographed the Japanese operations in Korea against the wish of the Japanese government. The work would not have been possible without the simplifications introduced into film photography within recent years, and the book is an interesting record of photographic work begun and completed under difficulties. The illustrations are selected examples of the result of these efforts, and make the book extremely valuable and interesting. A copy will be sent postfree by the Eastman Kodak Company to any reader who may care to write for it.





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No. 8.

The Pictorial Work of Arthur Burchett.

By THE EDITOR.



R. ARTHUR BURCHETT'S photographic work has a special interest for all who regard photography as one means of art expression,—because his chief interest is in the palette rather than the camera; in other words, he is a painter first and a photographer afterwards.

Like many other ardent lovers of landscape he is a townsman by birth, and from his youthful days onward has had a passion for drawing from nature. It was not until '85 that the camera became a

It was not until '85 that the camera became a partner with the brush. About that time his attention was drawn to some platinotype prints, and the good "quality" of this process at once appealed to our artist. This prompted numerous personal experiments in photography resulting in a series of fine pictures, which from time to time have appeared on the walls of the R.P.S. and Photographic Salon. We are happy in being able to reproduce several of these pictures, which, to our younger readers, are old enough to come as new works; while to our older readers, they will make their second appearance as widely-welcomed, well-remembered friends.

And here it may be mentioned that some of the pictures now reproduced are, comparatively speaking, "old masters"—that is to say, they go back to the late eighties—when many of our present-day self-styled

leaders were in the nursery.

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From these examples we shall rightly infer that Burchett divides his interest more or less equally between figure studies and landscapes. For camera work the balance of his preference is towards pictures in which some human interest is portrayed or suggested. And in this respect he has the "upholding" of our great master, Turner. But for palette and brush, Burchett has a preference for landscape treated upon the ideal rather than the realistic point of view. He is large-hearted enough to admire and enjoy anything that is honest and good work of its kind; it matters not by whom painted. This mental altitude of his will at once command our admiration and confidence.

As regards photography in its picture-making possibilities, he does not at present see any very great promise of much advance. "Photography," says he, "will always be photography, and it can never be anything else. Art is a creation of the brain, not imitative copying. Of the thousands of pictures painted every year, very few of them are works of art. Most of them are simply mannerisms. This is entirely different and apart from art, and should not for a moment be confused or confounded Similarly with regard to photography. with it. Much so called art is only mannerism, or a trick of the craft, the use of a particular lens, or printing process." These remarks are worthy of the very serious attention of our younger brethren, who are in constant danger of thinking art is a trick that may be learned by following some tip or dodge or formula.

Discussing the reasons why so many photographs fail as pictures, Burchett offers some valuable and far-reaching suggestions. For instance, often there is a want of pictorial interest in the print, or the interest is cut up and scattered all over the scene, i.e., there is a lack of subordination of all parts to the focus of interest. Again, sufficient care has not been taken to include only desirable objects and to exclude the undesirable, the incongruous and inharmonious. Bits of this and peeps of that have been included or permitted just to "fill up space."

THE PICTORIAL WORK OF ARTHUR BURCHETT.

The strong point in favour of photography, he thinks, is its power of recording passing eventsrecords of far greater interest and value than the imaginative drawings of pre-photographic days. Its weak points are the dwarfing of the distance and distortion or exaggerated proportions of near objects. Burchett prefers close framing for large work and the use of plain mounts for small pictures.

La Belle Bretonne.—We well remember the widespread feeling of admiration which this picture aroused when it was first exhibited. A glance in those days was enough to show the vast difference between its painter-like arrangement and treatment when compared with the formal and wooden things then passing current as figure studies. The student will note the "placing" of the figure in the picture space in this as well as all the other examples. To this subject Mr. Burchett has given considerable attention. The quiet nature of the background and unconscious posing of the hands all show us the artist behind his picture. broad arrangement of light and shade also has only to be noticed in order to show us the care with which the whole work has been thought out and executed.

Hampstead Heath.—Here is a scene at the door of our artist's home at that time. This is a fair and typical example of a subject that would be passed by ninety-nine out of every hundred cameraworkers and condemned as "nothing in it." But its severe simplicity, together with the fine suggestion of atmospheric effect, impart a subtle charm full of teaching that needs no words of ours. To the watchful eye, there is no need to make long journeys to find material for picture making.

Caller Herrin' is another charming and instructive figure study, possessing all the fine qualities of La Belle. In this instance we note a different light and shade treatment. Our one fault to find is in the slightly conscious expression of the girl. This is partly due to her eyes being directed towards us, though the head is turned a little to one side. Digitized by Google

The Mid-day Hour.—This title and picture are most happily wedded. At the moment of writing one longs to join the foreground sheep and share with them the umbrageous shade of their cool retreat. The glimpse through the opening in the trees shows us the palpitating heat and glare of the full noon sun, where dimly we perceive one or two members of the nibbling flock who are braving the warmth in search of an early dinner. In this instance we have an instructive lesson in the harmonious effect of a broad scheme of lighting.— The grouping of the sheep in the foreground is happily caught. This picture re-iterates the valuable lesson of the foreground,—the foreground,—the foreground; and also shows that even with an interesting and well-arranged foreground we must also have a pictorial disposition of light and shade.

Winter.—From the burning heat of midsummer to the nipping cold of snow-clad midwinter is a wide jump. But we find our artist is quite equal to the effort. One can easily imagine that this scene is not far away from that shown in "Hampstead Heath." But how different is nature's expression in the two instances! If we are fortunate enough to reproduce this picture with even moderate fidelity the student will here perceive the useful lesson in rendering snow not as blank white paper, but as finely graduated shades, which only reach their ultimate limit in the whiteness of uncovered paper. This picture is also a fine example of tasteful selection. It just shows that indefinable something which painters know as "taste," the quality which distinguishes a personal impression from mechanical transcript.

Chrysanthemums is rather different from the other figure studies and partakes somewhat of a decorative study. This example is particularly interesting for its grace of line and unity of design which so agreeably characterises the work. The poise of the head and harmonising of the figure with the background should receive special attention. The skilful massing of the flowers and avoidance of the usual spotty, patchy effect is particularly instructive.

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Fig. 2.

The Knight.

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THE PICTORIAL WORK OF ARTHUR BURCHETT.

Ceres is again a further departure in the idealisation of figure treatment. The title recalls the Roman Earth Mother, to whose bounty was owing the flowers and fruits in due season,—reminding us of Thomson's line

"Dark frowning heaths grow bright with Ceres' store."

This skilful instance of brush development shows the aim of the artist in concentrating attention on the figure, apart from her surroundings, as a type or symbol rather than a work of pure imitation.

The Knight.—Chance rather than design brings this example of our series before us last. But itstands by no means last, least, or lowest in our appreciation. This is another of the strong figure studies that attracted universal admiration when first exhibited. The student will note the strong light-and-shade effect used in this case, and how it aptly accords with the strong light-and-shade character of the days of knight errantry. The skilful treatment of the graduated background will also teach a valuable lesson. The whole work is one of simple strength and directness of design. The texture or surface quality of the armour is excellently rendered; a tall, strong and knightly figure admirably suggested—a work simple, strong, and complete.

Once again we must ask our readers to imagine these tiny reproductions in printers' ink to be for the moment some five or six times their present size and skilfully executed in platinotype. But alas! it is not an easy matter to "bridle imagination into a chosen path."

Most heartily do we tender thanks to the artist for letting us show our many unknown friends these little suggestions of works that it has been our privilege to have seen long ago, and remembered with so much enjoyment and pleasure.

We feel sure that our readers will join with us in the expression of regret that Mr. Burchett has of late years taken comparatively little active interest in picture-making by photography. And it is to be hoped that he may shortly have leisure and inclination to show us further examples of his camera craft.

Introduction to Architectural Photography.

By REV. T. PERKINS, M.A.



NYONE who wishes to take up Architectural Photography should begin by gaining some knowledge of architecture itself, sufficient at any rate to enable him to determine approximately the date of a building, to recognise its style, and to distinguish between

genuine old work and worthless modern imitations.

How to Commence.

It is not recommended that all the books mentioned in the foot-note should be read before exposing a

plate. After one of the smaller ones has been read, it will be a great help if the student can get a friend with some knowledge of architecture to take him round some typical building and point out its features. Let the study of architecture thus have a start, then practical work can be begun, and the two can be carried on together, so that each may help and lend interest to the other.

Two Objects in Architectural Photography. Some photographs of buildings with a view to picture-making, others in order to obtain a series of prints interesting from an architectural, historical, or

archæological point of view.

The picture-maker will deal with architecture as with any other material, paying attention to atmospheric effects, seeking to obtain broad masses of light and shade, sometimes suppressing detail, studying beauty of line and composition, and be satisfied with one or two good pictures of the building. The architectural student will go lovingly over any building that is worthy of his admiration, looking into every nook and corner, exposing plate after plate on doorway and window, boss and capital, tomb and canopy, statue and pinnacle. But though his chief object is to obtain records, yet he may do much by choice of position and lighting to introduce a certain amount of pictorial

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INTRODUCTION TO ARCHITECTURAL PHOTOGRAPHY.

quality into his work without sacrificing the detail which he wishes to reproduce. He should try to enter into the feelings of the builder or carver who did his work, with the view of its being looked at from certain points. It is not sufficient to set up one's camera anywhere, thinking only, that from this point I can get in all I want. The best spot should be chosen, and depend on it the architect, if he were worthy of the name, so arranged his building and all its parts that they could be best seen from easily accessible points of view. It is generally well to decline with thanks the offer of an upper window from which to photograph a building, and it is hardly fair on the sculptor, who meant his statue to be seen from the ground, to erect a platform some twelve feet high on which to place the camera. It is convenient to use a camera The Camera. of moderate size for architectural work, especially for interiors; for increase of size necessitates a corresponding increase of focal length in the lenses, and the longer the focal length the more the lens must be stopped down to obtain "depth of focus." To what extent this stopping down must be carried has been much discussed. some taking into consideration the fact that as the larger picture will be looked at from a greater distance, more diffusion may be tolerated in it; others arguing that stopping down should be carried so far that the same absolute sharpness should be found in the picture whatever its size. If we go upon the former supposition, then we may say that if a five-inch lens is used on a quarter-plate with f/8 and from the negative an enlargement equal to the size of a whole-plate is made; then to get the same definition in a direct print taken with a ten-inch lens of the same kind on a whole-plate the lens must be stopped down to f/16 and the exposure quadrupled.

Now, the shorter the exposure, provided it is sufficient, the better; not only is a long one tedious, but it decreases the number of plates that can be exposed in a given time, and, still worse, it allows change of lighting from the motion of the sun during the exposure, and this may seriously affect

the result.

My own preference is for half-plate size. The camera should have square bellows, a rising front, and a falling one also, if possible. If a front focusser, this may not be possible; the hole in the rising front for the lens flange may, however, be cut about an inch above the central position; then, if the sliding panel is put in upside down, the effect of a falling front is obtained. It is well to have an arrangement for bringing the back forward, otherwise sometimes the baseboard may cut off some of the foreground when a short-focussed lens brought low down is used. Most cameras are provided with a swing back, but it is a movement that I seldom use; I prefer to get lofty objects in by working with lenses which cover far more than the plate I am using, and raising the front considerably. Swinging the back necessitates a small stop to get objects at the top and bottom of the view in focus together; much less stopping down is required to get the margins of the field of view of the lenses I use sharp. A front that slides crossways is sometimes of use, as, without swinging the camera round, more of one side or other of the view may be taken in, its effect is to displace the centre of

vision horizontally. I have provided my camera with an adapting back, which enables me to use the slides belonging to a quarter-plate camera on my half-plate one. It consists (as the diagram will show) of a board that slides into the same place as the ordinary double backs do; it is

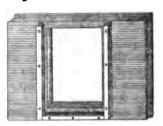


Fig. 51.

pierced with an aperture of 4½ × 3½ inch, and provided with strips forming a rebate into which the quarter-plate backs will slide. Of these I have six, but in one of them I place a sheet of ground glass, which, when both shutters are drawn, serves as a focusing screen. Thus, in addition to the half-plates in their own backs, with a very small increase of bulk and weight, I can carry ten quarter-plates, which are often of great use for detail work.



CALLER HERRIN.



ris. 4.

Winter Sunset on Rampstead Reath.

INTRODUCTION TO ARCHITECTURAL PHOTOGRAPHY.

The tripod stand should be of suffi-The Tripod. cient height to allow the view to be focussed without stooping, and not too high to prevent the spirit-level fixed on the top of the back part of the camera being examined when the photographer stands on tip-toe. It will be convenient to have what is called a three-fold stand. the lower division made to slide. If a little piece of india-rubber tubing is slid on to the feet and allowed to project an inch or so, it will prevent the tendency of the feet to slip on polished floors.

The lenses used for architectural The Lens. photography must (with the exception noted below) be rectilinears, and it is a great convenience if they will open out to at least f/8, they should be so well corrected for spherical aberration, that if the view is focussed at full aperture, stopping down will not impair the defini-The old-fashioned rapid rectilinears with a hollow field are sometimes useful for such views as a church interior, taken from one end, as the curvature of the field will help to get the nearer objects at the sides, and the more distant ones at the centre of the plate in focus together with a comparatively large stop. But the advantages of the modern Anastigmats are so great, that on the whole they are to be recommended. Most of my half-plate architectural work is done with two Platystigmats of 41 and 8 in. focus respectively. The 8 in. shows no dark corners on a 12×10 plate. so that with it the rising front of my camera can be used to its utmost extent (about 2 in.), the $4\frac{1}{2}$ in. lens will permit the front to be raised about an inch, which has the effect of bringing the horizon down to about two inches from the bottom of the plate when its longer sides are vertical. An intermediate lens of the same series, 6 in. in focus, would form an ideal set. The full aperture is really about f/7.3, though nominally f/8. If a longer focus than 8 inches is required, the back combination of the 6 in. and the 8 in. used as single lenses would have focal lengths of 12 and 16 inches respectively, and would scarcely show any deviation from rectilinearily on a half-plate. Digitized by Google

In architectural work, more than Wide-Angle in any other, the peculiar defects Lenses. due to the injudicious use of the wide-angled lens are apparent; the perspective is absolutely true, but the use of a wide-angled lens generally means the choice of a portion too near the object, and hence a too violent convergence for pictorial effect of lines which fall near the edge of the plate. This, as in the view of St. Alban's (fig. 10) makes the building look far too long, and in that of Turnworth Tower (fig. 9), makes the near angles at the top and bottom unpleasantly acute. If a wide-angled lens is used for a horizontal view of a nave taken from one end, it gives the effect of the arcading, being bent backwards towards the ends of the plate. In certain cases, the lens may be used without fear, e.g., when taking—(1) a flat wall at right angles to the axis of the lens; (2) an upright view, especially if trimmed down to a narrow strip (see fig. 11); (3) an exterior in which the corners are occupied by sky, with only a central spire rising from the building (fig. 13). If the top of a tower occupies a corner, the distortion is very noticeable. (fig. 9).

The telephoto lens, useful The Telephoto judiciously employed, is as liable to abuse as a wide-angled lens. For interior detail work, an ordinary lens of long focus, on account of its larger aperture, which makes focussing easier, is more convenient, but for exterior details, the telephoto lens is most useful. Yet if it be used with high magnifying power to take the whole of a building at a considerable distance, a quarter of a mile for instance, the result is most unpleasant, the converging lines are so nearly parallel owing to the great distance of the vanishing points from the centre of vision, that walls, really at right angles to each other, seem as though almost in one plane. Plates of ordinary rapidity answer

Plates. well for exteriors, but rapid plates are better for interiors—first, because exposures are greatly shortened—secondly, because quick plates, as a rule, give softer negatives, and these yield the best prints of interiors. Isochromatic plates are

INTRODUCTION TO ARCHITECTURAL PHOTOGRAPHY.

of advantage when, owing to painted windows, or a yellow or greenish tint in the glass, the light is somewhat non-actinic. In photographing painted windows, isochromatic plates are indispensable.

Plates should always be backed to Halation. prevent halation, which is apt to show itself more strongly in negatives architectural interiors than in any other kind of photograph. A complete cure for halation, free from all other disadvantages, remains to be found. Paper negatives are free from that part of halation caused by internal reflection; films are not much affected by it, but there is a difficulty in getting paper or celluloid to lie perfectly flat, and the former is not transparent. A stained film between the sensitive film and the glass should entirely prevent it, but this film often leads to frilling, so that at present backing seems to be the most generally useful precaution against halation.

Having carefully chosen the subject Focussing. and decided how much you intend to take in, set up your camera, level it carefully, and select the lens which will most nearly fill the plate with the chosen subject. Focus the chief object with open aperture, and stop down only enough to get sufficient definition in other parts. If the view is an interior, and it is too dark to see the definition in these other parts, one can only use one's judgment founded on previous experience to guide one in stopping down. Sometimes it is so dark that even with full aperture it is difficult to The best plan for overcoming this difficulty is always to take a box of matches and a piece of candle, and to set the lighted candle so, that while concealed itself, it strongly illuminates a card or envelope placed against the object you want to focus; the corner of the card is easier to focus than a flame; by getting a friend to move the candle, while your head is under the focussing cloth, until its image reaches the ends of the plate, you can, by removing your head from the focussing cloth, and looking at its view from the position (as near as possible), of the lens, see how much of the subject you have included.

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To rightly estimate the necessary Exposure. exposure is one of the chief difficulties of interior photography. An underexposed interior is worthless. Hence it is always well to err, if at all, in the other direction, bearing in mind the fact that if direct sunlight, streaming through a colourless glass window, falls upon white stonework, excessive exposure may lead to reversal. To estimate exposure, some place an actinometer in some convenient point of the subject being photographed, and expose until the sensitive strip has once, twice or more often matched the tint; the exact number of times required for the plate and stop having been determined by previous experiment, the lens, if necessary, may be capped while the sensitive strip is being pulled out, or the sensitive disc of the actinometer turned round. This method is a very useful one. Others always preserve careful notes of previous exposures, and the character of the resulting negatives, and trust to their judgment based on experience. have been prepared giving approximate times of exposure according to the appearance of the view on the screen, or rather the size of the aperture, as the iris is gradually closed up, at the time of the disappearance in darkness of detail that is required to be seen on the negative. But this method is of no great value, as it takes no account of the colour of the light, a pale yellow being to the eye almost as luminious as white light, while its actinic power is far less. The actinometer does take this into account. Fortunately, however, plates allow of great latitude in exposure, so that if, for instance, one minute is sufficient, an exposure of several minutes will produce with suitable development a negative from which an almost identical print may be made. It is well in a day's work to give all the plates what may be called equivalent exposures, taking into consideration change of stop or lighting, or brand of plate, and to expose two plates on one of the subjects; the development of one of these will give a clue to the necessary treatment of the others. If the time of exposure is likely to be long, it is well to adopt a method suggested some time ago by the Editor of this magazine, namely,

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Fig. 5. Wlinter.

A. Burchett.

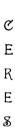




Fig 6. A. Burchett.

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to give part of the exposure with a small stop, and finish it off with a supplementary exposure with a large one. The time will be shorter than if an equivalent exposure were given with the small stop, and the result better than if the same total time were given with such an intermediate stop as would make this exposure equivalent to that actually given. It is said that the small stop gives sharpness, and the large one has a softening effect. It will not be necessary to dwell Development. at any length upon development, as this subject has been fully dealt with in a previous issue. I have already said that for interiors, a soft negative is desirable, it should be thin, full of detail, have no harsh contrasts, and yet not lack vigour; these characteristics will be secured by using a normal developer, greatly diluted, which may be poured off when the highlights appear, and in its place water poured on, in which the plate may be allowed to soak for some time. The detail will come out gradually without the high-lights being blocked up. It will then be seen if local development or restraint is desirable, and when the water is poured off, the original developer may be poured on. (Modified necessary).

It has been said that care must be Hints on taken to choose the best position Suitable for the Camera. A few hints may Positions. be given. Doorways and windows should be taken full in front. If taken from a side the beauty of the curves of the arched heads are often quite destroyed (see fig. 12). Never cut off the point of an arch or the base of a pillar. Always show some of the pavement below the latter. When taking arcading let a pillar occupy the edge of the plate. In taking a general view of a nave place the camera a little on one side of the middle line and turn the lens towards the other side (compare figs. 11 and 14). If there are seats or chairs do not put the camera so that the line of their backs runs across the plate or so that either of the lines formed by the bench ends runs vertically down-Remember that views looking obliquely across a church are often more pleasing than those

looking directly along or across it. Don't forget to go all over the transepts in search for points of view.

The Roof. If we want to photograph a roof we may focus it by lying down on the floor holding the camera over our heads and when duly focussed insert the slide, pull out the shutter and place the camera with its back on a chair. Or we may measure or obtain from guide books or vergers the height of the roofs of aisles or naves, and carry the camera the same distance away from some easily focussed object, focus that and then set the camera down on the floor with the lens pointing upwards.

In ordinary interiors it is well to keep the camera not more than 5 or 6 ft. from the floor, if however the floor occupies too much space on the plate the

camera may be brought lower down.

Pictures out of the common may be taken from unusual positions such as the triforium, clerestory, or roof; such views are sometimes pleasing as well as interesting. Advantage may be taken of certain states of weather or seasons of the year, for instance, a porch is better lit by the low winter midday sun than by the summer sun high at noon, light thrown up through the clerestory windows from snow outside the building will often make the taking of a dark roof easy.

For interior work sunlight sufficiently strong to throw a soft shadow so as to give relief to the carved work is desirable. Glaring sunshine gives

rise to harshness.

In photographing rooms a corner position for the camera and a diagonal direction for the axis of the lens should be avoided. Chairs and other easily moved pieces of furniture should be cleared away from the immediate neighbourhood of the camera. Care should be taken that the glass of picture frames does not reflect light from the window, a little wedge of paper placed between the frame and the wall will generally turn the reflection aside.

Sundry Cautions.

In cold weather one should always be on one's guard against dewing of lenses. If a lens is taken from

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cold air into a warm building moisture will be condensed on its surface. It is no use wiping it off, for it will soon reappear. The lens must be warmed to the temperature of the air by putting it into one's pocket, or holding it over a stove. Out of doors on a cold day the lens may be dewed by putting on after focussing a cap which has been warmed by holding it in the hand. Always therefore lay the cap on the camera and touch it only with the finger tips when putting it on the lens before exposure. If light from a window falls on a lens it may fog the plate; it is therefore difficult

to photograph an object under a window. I made a little framework (see fig. 52) of wood through slits in which blackened cards can be inserted; this framework I fasten to the sliding base-board which covers the front, placing it an inch or so in front of the lens and covering the space between it and the front with a cloth, and push the cards in while

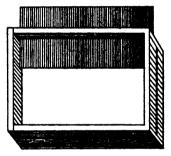


Fig. 52.

looking at the focussing screen until I cut out the window or source of light, or shade the lens sufficiently to destroy the fog. A sheet of cardboard laid on the top of the camera with the focussing cloth placed on it and hanging down on either side protects the lens from side light. A square of blackened cardboard with an aperture slightly less than the size of the plate, put between the folds of bellows an inch or two before the plate will cut off light reflected from the image of a window thrown by the lens on the inside of the bellows.

Figures. Figures frequently cause trouble. Great patience often has to be exercised when photographing exteriors, as we wait till the view is clear of them. If a shutter exposure is made some figure is almost sure to be caught in an ungainly attitude; if there are so few present that we can ask them to stand they will generally assume a stiff position. One plan which sometimes

answers is to stop down as much as possible, give a long exposure and disregard the figures, for if they keep constantly passing along the road they will not leave any trace on the plate; if, however, it is noticed that anyone is standing still the cap must be put on and the exposure completed when the figure has moved on. In interiors, unless the figures pass through beams of sunlight or wear white dresses, there is little danger of any harm being done; I have never found any visitor to a church make any objection to moving if courteously asked to do so. Sometimes a verger may be conducting a party round and may pause before some object of interest for a few minutes. In such instances the cap should be put on until they have moved away.

No permission as a rule is needed Permits. for photographing exteriors of any public buildings, or private houses from public ground, but ordinary courtesy demands that a camera should not be taken on to private ground without permission. Permission to photograph the interior of a parish church should be asked of the Rector, even if the door is found unlocked; the Dean or Canon in Residence should be applied to in the case of a cathedral church, except where fees are charged, in which case the verger is generally authorised to receive the fee and sign the order. It often prevents disappointment if application is made beforehand by letter in which a stamped directed envelope for reply is enclosed.

The following books will be found useful to the beginner:— Parker's A B C of Gothic Architecture. 8s.

The present writer's Handbook to Gothic Architecture. 3s. 6d. (This book gives lists of examples for study in every county, and deals with Domestic as well as with Church Architecture).

Parker's Introduction to Gothic Architecture. 5s. Parker's Concise Glossary of Architecture. 7s. 6d.

For the more advanced student the following are recommended :-

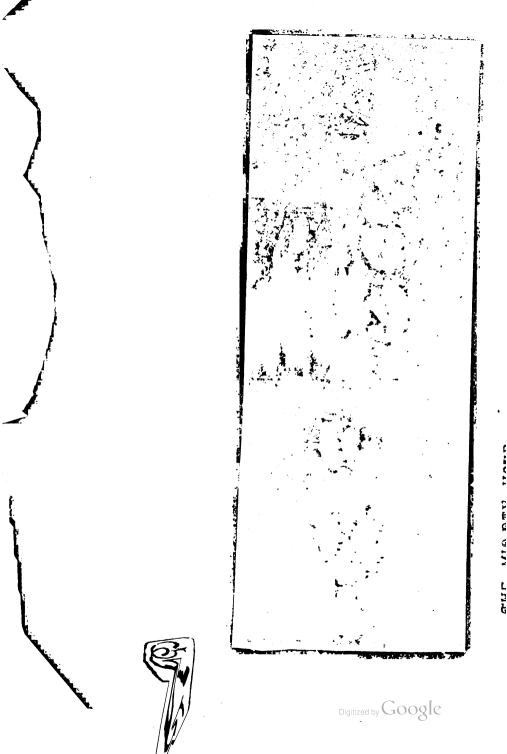
Rickman's Gothic. 16s. (Parker).

Moore's Development and Character of Gothic. 21s. (Macmillan).

Prior's Gothic Art in England. 31s. 6d. (Bell).

Fergusson's History of Architecture in all Countries. In five volumes. (Murray). Blomfield's Renaissance. Either the large work in 2 vols.

or the abridgement, 10s. 6d. (Bell), is useful for its period. \bigcirc





Notes on Architectural Photography.

By WILLIAM G. FRYER.

HE following notes are specially written for the worker, who would make architectural photography a success, pictorially considered, and also as a means of delineating the details of the architectural objects it is desired to reproduce. At the very outset let me say that no one

can possibly do any serious Architectural Photographic work who is not prepared to sacrifice time, labour and money. The architectural photographer must be provided with the best apparatus.

Size of Plates. The first question that naturally arises in the mind of the architectural photographer is "what is the most suitable size of plate to work with?" This must be regulated (1) by the photographer's purse. (2) By the use to which he intends to put this branch of photography. (If the optical lantern be the ultimate destiny of his pictures, then without doubt he will use the size most suitable for this purpose, viz., quarter-plate.) (3) By the ever present inconvenience of the larger sized plates, owing to the bulkiness and weight of the apparatus used for working the same.

It will very often be found neces-Tilting Tripod sary to tilt the camera upwards a Head. few degrees, in order to get the image of the top of (say) a high building on the focussing screen. To do this in the ordinary way, one would have to adjust the tripod legs so as to get the top at the required angle, and this usually means that we may get the camera and tripod in a none-too-secure position, and even gently drawing the shutter of the dark slide may displace the view to be included on the plate. A much better plan is to obtain an adjustable tilting tripod head to bescrewed on to the ordinary tripod top in the usual way, and by securing the camera to the upper part of this arrangement it can instantly be adjusted to any angle without so much as touching the tripod legs at all, the camera remaining perfectly rigid the while. This tilting tripod top (see figure 53) is also

very useful for photographing ceilings if it be made so that the topmay be turned through a quadrant of a circle. I am not aware of the existence of such a tripod top on the market, but anyone with a little in-



genuity could make one, or have one made for him by a local cabinet maker at a nominal cost.

Wide-Angle Lenses.

Most of the modern anastigmats are wide-angle lenses—that is, they embracea large angle of view; when

these are used on a plate whose longer side is less than the focal length of the lens very little distortion will be noticed in the resulting photograph. But a great deal of stray light will necessarily enter the camera even if it does not reach the plate direct. Especially is this noticeable when photographing an interior with fairly light winde ws on either side of the view embraced by the plate. Unless this stray light be intercepted before it reaches the plate by reflection from the bellows, etc., of the camera, it will produce a film of fog over the whole plate surface, and, to a very great extent, spoil the resulting photograph. To avert this, a small piece of black card, having a rectangular hole cut in it,

whose sides are proportional to the dimensions of the plate, should be inserted between the lens and the plate so as to intercept all the light from the lens which would otherwise fall on the bellows of the camera. (Fig. 54).

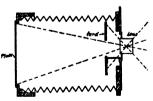


Fig. 54

While on the subject of wide-angle lenses, it is well to note that a photograph embracing a very large angle looks perfectly natural (in fact, strikingly so), if one's eye occupies the same position as the

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centre of the lens originally occupied with respect to the photograph. This can only be done in most cases by using a magnifying glass of the same focal length as the lens, in viewing the photograph. Hence it follows that the larger the dimensions of the photograph the more natural will it appear if viewed at the ordinary distance.

If a hand camera be used for architecture, it should be of full-size-finder type, provided with a reversing back, focussing arrangement, and rising

and falling front.

These subjects have been dealt Development. with extensively in volumes Nos. After-Treatment. 6 and 7 of this series, but a few words of caution as to the development of architectural photographs will not be out of place here. Firstly, use plenty of non-actinic light for examining the plate, and keep the dishes well covered during development. Secondly, do not over-develop, especially in interior work. Be sure that you can judge the ultimate density of the negative by examining it in front of the light you are using. There will be found to be a considerable variation in this respect in different brands of plates. Moral: stick to one brand and master it thoroughly. Lastly. Local Reduction will very often be found of great service where such a subject as a bright stained glass window has come out too dense in a negative.

Printing
Processes.

For pictorial effect, in my opinion nothing can excel platinotype paper, or even approach it in artistic merit. It has, however, the disadvantages of (1) being only available in a good strong daylight (2) it cannot be controlled in development so easily as other kinds of paper. Some of the slow 'gaslight' bromide papers can be made to give very beautiful prints of architectural subjects, and they have become very popular on account of the ease with which they can be manipulated. Here again local development will be found very useful.

Figure 50 A, is taken from a 'gaslight' print of the choir, York Minster. The window being a light one, is rather difficult to photograph, and has come

out rather too dense on the negative, and there is also abundant halation present. But by washing the print when the other parts have been sufficiently developed, and by means of a soft camel-hair brush continuing the development of the window and surrounding parts, with a rather strong developer. the resulting photograph appears as fig. 50 B. Great care must be taken that the developer does not spread to those parts that are already sufficiently developed, or dark patches will be the result. It is often necessary to wash the print several times during this process.

For showing elaborate and fine details of an architectural subject, a good brand of gelatinochloride P.O.P., toned to a rich brown-black, and squeegeed on plate glass is effective.

Photography as a Means of Measuring Buildings.

Photography may be made to serve a useful purpose and greatly aid an architect in measuring up the front of a building whose exact dimensions (say for alterations)

could only be obtained by means of long ladders and a great deal of laborious work. In the ordinary way a fairly accurate sketch must first be made of the subject, and then each detail carefully measured and made a note of on the sketch. This process must be continued until the draughtsman has enough data to enable him to correctly portray the front of the building on paper in his office. Now if a photograph of the building be taken from a point

F. (see Fig. 55) exactly opposite the centre of the building, all dimensions of objects in the vertical plane, A B, on the building will be in as exact proportion to each other on the resulting photograph as they are in reality; so that if the length A B of the front of the building be accurately measured, all the other dimensions, widths and heights of windows, etc., etc., can be found by proportion: e.g., in Fig. 55 if A, C, D, E, B represent any points in



Fig. 8.

Chrysanthemums.

Chrysanthemums.

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one vertical plane and a, c, d, e, b, the same points on the inverted image of the building, the distances ac, ad, ae, and ab, will be exactly proportional to AC, AD, AE, and AB, respectively. It would even be possible to photograph a building to scale (as far as the front is concerned) by graduating the ground glass of the camera by lines drawn a known distance apart (say, quarter of an inch). Then by first measuring a certain dimension on the building and making this dimension occupy just the right number of spaces when examining the image on the ground glass, the rest of the resulting image would be as easily measured as a plan can be in the ordinary way, by applying a scale to it.

Of course such photographs as these would have no pictorial merit whatever. It is distinctly against all artistic taste to plant the camera directly in front of anything we wish to photograph (unless copying a photograph, diagram, or the like); but for the special purpose referred to, it is absolutely essential that each horizontal line in the building should be perfectly parallel to the top side of the plate. The further away from the building (up to a certain point) we can get, the better will such a photograph be.

Scale. Sometimes it may be required to show the actual size of some piece of detail. A two foot rule placed close to it in a place parallel to the camera back and photographed together with the object will show its size.

Sky Shade. It is wonderful what a difference in the brilliancy of a negative asky-shade will make when judiciously used—particularly is this the case when working with a lens which will cover a much larger plate than that which is being exposed. The less stray light there is in the camera the better.



Notes on Interior Work. By HENRY W. BENNETT, F.R.P.S.

STIMATING the exposure necessary for interior subjects is a difficult problem to those unaccustomed to architectural work. A meter is practically valueless, as the effect of shadow details on a sensitive plate is modified by their distance. No meter can gauge this effect

—shadow detail softened by distance and intervening atmosphere,—but the photographer can

judge its value and expose accordingly.

Exposures in interiors will vary considerably, and it is as desirable to expose a plate correctly as in landscape work. Under-exposure should be rigorously avoided, as in most cases the subjects present very harsh contrasts. Slight over-exposure will, consequently, allow control to be exercised in development with much greater success than in evenly lighted landscapes.

In estimating the exposure necessary for any subject, the number and size of the windows must be taken into consideration, and also the manner in which they light up those parts of the building which form the deepest shadows of the picture. Where light falls very obliquely from windows on portions forming the subject of the photograph, considerably longer exposure is necessary than where a direct lighting can be secured. The oblique light, will, however, produce a more effective result.

Stained glass in windows necessitates a considerably longer exposure than the light glass frequently used for church or cathedral windows. In most cases from three to five times the exposure should be given, but the predominating colours and their depth must guide the worker. Trees or buildings that obstruct windows will increase the time of exposure, and their presence should be noted before entering a building, as it is difficult to realize after remaining in a dimly lighted church, that the exposure must be several hundred times longer than would be sufficient for the exterior.

As most workers will choose many of their interior subjects from the cathedral churches, typical exposure for different parts of such buildings will form the most simple means of conveying suggestions for correct exposure for this work. The information given will enable those who propose to add architectural studies to their other photographic work to compare the subjects with the actual exposures. It will also form a basis for judging

other subjects.

The naves of most cathedrals are well and evenly lighted, and the stonework diffuses the light well. An exposure of one minute, under the best possible conditions, in June, using aperture, f/16 and a rapid plate, about 200 H. & D., will be correct in most buildings. In some cases two or three times this exposure should be given. In the aisles of the naves the time necessary may vary from one or two minutes where there are unobstructed light glass windows, up to eight or ten where glass is all stained and the windows are small. In this, and the other examples given the conditions previously named are assumed. In the choir of a cathedral the lighting is generally very uneven. The dark stalls and their canopies receive least light, while the light coloured stone of the upper portion is well illuminated. This renders a long exposure necessary in order to produce a negative of good gradation. It will range from four to sixteen minutes according to the varying conditions in different buildings. In all, the exposure must be longer if the camera is placed between the choir seats and those near are included in the picture, than would be necessary if the camera were at a distance from them.

Windows. — Wherever practicable, windows should be avoided. At the best, they form bright patches of light. And usually these strong lights destroy the effectiveness of the picture. The objection to them is that they are lighter in tone than any other portion of the subject. Although the inclusion of the windows themselves is very undesirable, the effect that they produce—the manner in which they may light up certain parts of a subject—may frequently form a valuable assistance in making an effective chiaroscuro.

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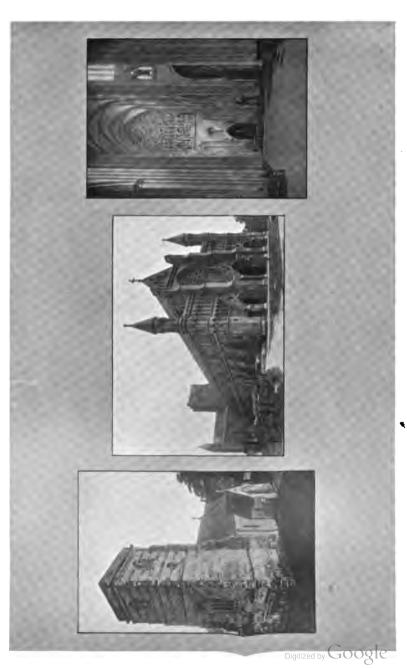
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Foreground.—The value of foreground is not always sufficiently appreciated in architectural work. There should always be sufficient floor shown in front of important vertical objects to suggest space. Nothing is worse than to see the floor cut off immediately in front of an important column or wall. The floor lines running into the picture convey instinctively the sense of space, and suggest that the observer is standing at a distance from the nearest vertical plane. Where there are strongly marked lines on a floor they assist materially in suggesting the impression of a receding horizontal plane.

Focusing.—At times there is difficulty experienced in determining the portion of the subject to focus sharply. When the subject is exceptionally deep—a long cathedral aisle, for example—the extreme distance may be disregarded, and a certain portion determined that must be sharply defined. Of this portion, a spot should be selected about one-fourth of its length from the part nearest to the camera, and this spot focussed sharply. With a very moderate reduction of the aperture, the definition should be satisfactory throughout.

Covering power of Lens.—Before commencing interior work, careful tests should be made of the covering power of the lens, and the extent to which the rising front may be used. These tests should be made on landscapes, as the image can be more plainly seen. A subject should be focussed with the lens opposite to the centre of the plate, and then the extent to which the aperture must be reduced to obtain fine definition over the entire plate The front should then be slightly ascertained. raised and the image at the lowest corners again examined; and this operation repeated until it is definitely ascertained how far the lens can be raised without showing dark corners on the screen, and also how much extra reduction of the working aperture is necessary to give good definition to the corners when the maximum rise is utilised. satisfactory lens should allow a rise of one-fourth of the length of the plate at least, and a smaller aperture than f/32 should not be necessary. Definite

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T. Perkins.

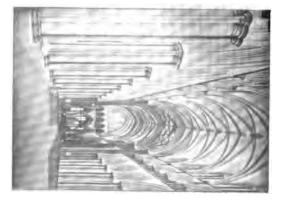
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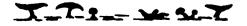


T. Perkins.

information of this character will be found very valuable in interior work, as it is impossible to see the darker details when a small aperture is used.

Character in Architecture.—It should be recognised in this work that the character of the architecture is a most important quality. Although a strong effort should be made to produce a result as pictorial as possible, the architectural character must be regarded as equally essential. A photograph that does not render this character effectively cannot be considered successful, however good it may be in other respects.

Development.—In developing negatives of interior subjects harshness or too strong contrast is the defect that will frequently occur. It will probably be recognised that the actual contrast presented in many subjects is very great, and unless special precautions are taken excessive harshness in the negative is inevitable. exposure should be rather too short, the tendency to this defect will be increased. For such subjects a full exposure should always be given, and then softness of gradation can be secured by using a diluted developer, the relation of the constituents being normal excepting the quantity of water, which should be from two to four times the normal. By the simple expedient of diluting the developer a degree of softness may be secured that is quite unattainable by other means. So many interior photographs are ruined by their harsh contrasts that it seems to be very desirable to warn the inexperienced against this defect, and to indicate the most simple means of avoiding it. Discrimination must be used in determining the composition of the developer. A subject may be not only dark, but almost uniformly dark, and so present but little contrast. In such a case development should be similar to that adopted for ordinary landscape work.



Some Hints to Architectural Photographers.

By C. WELBORNE PIPER.



building designed entirely by one man and forming one complete work of art is of necessity designed with the idea that it will be seen from certain particular standpoints. In the case of a church interior the main point of view is the central west door, and points of

next importance are situated on an axial line leading from the west door to the altar.

Symmetrical Views.—Perfect symmetry is usually observed on the two sides of the axial line of a church under the governing idea that the altar is the predominating feature within the building, and attention should therefore be especially directed to it. The finer the architecture the more strikingly impressive is such a symmetrical vista, and it should not be neglected by the photographer under the mistaken idea that exact symmetry is necessarily "inartistic."

Next to the west door the most important symmetrical view point is likely to be one nearer the chancel and including portions of the two transepts. The entrance to the chancel may afford another striking east view, different from either of the others, while the same point and also the altar often afford good western views. As a rule, however, western views are far inferior in interest to eastern views.

Transepts.—Transepts are not usually designed to form symmetrical vistas, nor intended to be viewed from each other. Generally speaking, a western transept wall is designed to be seen from the chancel and an eastern wall from the nave. The best views of the architecture are therefore generally to be obtained from those positions.

Complex Buildings.—Buildings that represent the work of different men and sundry ages form collections of works of art rather than complete

SOME HINTS TO ARCHITECTURAL PHOTOGRAPHERS.

works, therefore view points should be selected on different principles. General views have an historical rather than an artistic interest, and usually form unsatisfactory pictures. No symmetrical vistas may be obtainable, as symmetry is often entirely destroyed by alterations and additions.

Additions.—Speaking generally, each addition has been designed with the idea that it will be seen from some part of the pre-existing building. The older portions are therefore likely to afford the best view points, and dates should be noted. Occasionally a new addition will provide a station point from which a good view of an old part is obtainable, but this is more likely to be accidental than intentional. While each addition should be separately studied, and no one view should include too great a mixture of various styles, yet the junction of two different styles, if well carried out, often affords features of great interest.

Mouldings and Lighting.—In real architecture mouldings are neither designed as ornaments nor as decoration, though they may themselves be sometimes ornamented or decorated. They are intended to produce effects of light and shade, softening or emphasizing outline, or revealing structural lines, therefore the lighting must be very carefully selected to avoid the production of false effects. The positions of the windows will give some idea of the manner in which the architect anticipated the light would fall, but the effects at various times must be compared to obtain the best effect possible.

In buildings showing a mixture of styles and periods and not lighted in accord with one specially designed scheme, awkward cross lights may exist at times, and the selection of the lighting is more

difficult, and requires much consideration.

Carving.—Carving is often applied to introduce effects of light and shade on surfaces. In other cases it is employed for its own sake, suitable spaces and surroundings being provided for it by the architect. These architectural uses of carving must be distinguished from the after introduction

of it in places not specially designed for its reception. When the carving is an essential part of the design it should be so shown in a photograph; not by itself as a detached specimen of the carver's craft. On the other hand introduced carving alien to the design of the building is best shown isolated. as it is not architecture.

Blank Walls. Blank wall surfaces play an important part in an architectural design, and their proportions and general arrangement form a severe test of the architect's skill. Hence they should not be carelessly cut down or left out altogether in photographs. Photographers are apt to give too much attention to the isolated representation of "features," "bits," and "details," and to ignore adjoining wall spaces.

True Drawing.—Lenses giving distortion should be avoided because they falsify proportion and distort arch curvatures. Test the lens by photographing a high vertical object with the camera tilted and the swing back vertical. If the drawing is correct upright lines will be vertical in the photograph, but a single lens or a portrait lens will show them converging upwards and curved, while some types of telephoto lenses will show them straight but diverging upwards.

General Hints.—The architect only designs from probable and natural points of view, therefore views from strange positions will not illustrate his design, though they may be curious and interesting, and may record particulars that cannot be seen from ordinary positions.

In record work do not on any account neglect vaulting and pavements. Pay particular attention to strange or awkward features, such as shafts or caps half buried in a wall, straight joints, built up arches, traces of alterations and removals. These sometimes give valuable historical evidence more to be relied on than written records.

Never enter a strange church that you know to be worth seeing by any other entrance than the West door. You will not get a true impression of the building if your first view is not from the one

best point.



Fig. 15.

PRIOR'S DOORWAY, ELY.

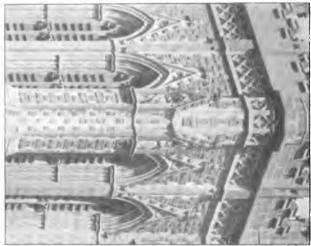
(Vide p. 40, 52.)

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Fig. 16.







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Architectural Telephotography.

By MAURICE HOUGHTON.



HERE are many details about churches and the like which cannot be taken upon a sufficiently large scale with an ordinary lens, or require staging to enable the camera to be brought near to them. In these cases a telephoto lens is of very great use to the serious

worker, and if he is bent on making photographs of a Record nature, it is almost indispensable.

Camera.—It is desirable that the camera should be of the long-focus type, although triple extension is not desirable, on account of the increased liability to vibrate. Vibration is the greatest trouble that has to be faced in telephotography, and as a more than usually heavy lens has to be used in conjunction with a camera at a long extension, the probability of movement during the exposure is considerable. A camera of the square bellows type is the best. It should have a good swing back, because the camera will often have to be tilted from twelve to twenty degrees. The stand must be very rigid, as the slightest vibration will quite spoil a telephotograph.

Plates.—Always use chromatic plates of a medium

speed, and have them backed.

Focusing.—On account of the poor illumination, a focusing glass is absolutely necessary. The ground-glass screen should have in the centre, an ordinary microscope cover glass, cemented to it by means of Canada Balsam, with a fine hair stretched across the cover glass. The focusing glass is adjusted till this hair is in focus, and then is used to determine whether the portion of the view included by the cover glass is in focus. Very exact focusing can thus be obtained.

Light.—Diffused light is better than direct sunshine, and subjects with a bright light behind

them should be avoided.

Magnifications.—The rule for finding the magnification produced at a given camera extension is:—

Divide the distance from the focussing screen to the back of the negative lens by the focal length of the negative lens, and add 1. For example:—

Focus of negative lens=2 inches. Distance from screen to back of negative lens=12 inches.

Then the magnification $\frac{12}{2} + 1 = 7$ diameters.

To find the F. value of the telephoto system:— Divide the F. value of the positive lens by the magnification. For example:—

Magnification=7 diameters. Stop used in positive lens is $\frac{\mathbf{F}}{7}$ Then F. value of the system $\frac{\mathbf{F}}{7 \times 7} = \mathbf{F}$. 49.

Exposure.—The exposure increases directly with the square of the magnification. For example:—if the exposure for a subject is \(\frac{1}{2} \) a second at F. 32 with the positive lens, and by adding the negative lens, we get 4 magnifications, then the exposure will be \(\frac{1}{2} \times 4^2 \) or \(\frac{1}{2} \times 16 \), that is 8 seconds. This is an accurate method, but not very easy to work out in the field. The best way is to mark 4 or 5 extensions on the baseboard of the camera, say 8, 10, 12, 14, and 16 inches, and then make out a reference card, something like what is shown below, and fix it in the lid of our camera bag.

(For a telephoto combination, having a negative lens of 2 inches focus).

Camera exten., in inches.	8	10	12	14	16
Magnifications.	5	6	7	8	9
Equivalent Aperture at F. 7 in pos. lens.	f/35	f/42	f/49	f/58	f/68
Do. at F. 10 in pos. lens.	f/50	f/60	f/70	f/80	f/90
Do. at F. 15 in pos. lens.	<i>f</i> /75	f/90	f/105	f/120	f/185
Do. at F. 22 in pos. lens.	f/110	f/132	f/154	f/176	f/198

Subjects for Telephotographs.—All our cathedrals and many of our churches and abbeys contain much detail work; gargoyles, statues in niches, corbels, and the like, which cannot be taken with an ordinary lens on account of their position. Take for example, the Bell Harry Tower of Canterbury Cathedral, which is probably one of the most perfect structures that Gothic architecture, inspired by the loftiest purpose that ever stimulated the work of any art, has produced. The ordinary photograph gives a very good general idea of the whole, but to understand what marvellous detail there is in this work, one has to employ telephotography. Or again, look at the modern tower of St. George's Church, Beckenham, Kent. (See Figs. 16, 17, 18.) Gargoyles and corbels form interesting pictures, many of them taking very grotesque forms. The capitals of pillars, statues in niches, pinnacles, and parts of flying buttresses all make effective studies, and are quite out of the reach of any ordinary lens; but yet are surely well worth the taking, even though they be only as a record.

Points to Remember.

 Use a spirit level, and see that the back of your camera is upright.

2.—Take your time when focussing, and make sure

you have got your picture sharp.

3.—Be careful not to shift the camera when pulling out the shutter of the dark slide. A very slight movement will take the subject out of the field.

4.—Be careful, when taking off the cap, not to set

the camera vibrating.

5.—Don't be afraid of giving a full exposure. Over,

rather than under-expose.

6.—Use backed orthochromatic plates; and when developing aim at getting good "contrasty" negatives.

7.—Make a few trial exposures on the same subject with the same stop, and compare them. You will then soon learn what exposure to give.

8.—Don't be disheartened because your first attempts are poor. Try again on the same subject until you do get a good one.

Photography as an Aid to the Antiquary.

By T. KIRKWOOD HACKETT.

N no subject are copious notes and records a greater necessity than in antiquarian research. It is almost impossible to do without reproductions in some form or other of the objects under consideration. Time is saved and laboured verbal descriptions are avoided.

For this purpose three methods are available—
(a) Sketches; (b) Measured Drawings; (c) Photographs. The first two, however, demand special training and considerable time to produce ade-

quate results.

When we invoke the aid of the camera we find that, given a sufficient knowledge of the rudiments of the art, we can produce accurate reproductions of the work under consideration in a minimum of time. We have the further advantage that by enlarging we can produce our records of any desired size, and can also multiply copies with ease.

Size of Camera. In choosing instruments for work of this class the first point to be considered is the size of the camera to be used. It seems to have been an accepted axiom in purely photographic circles that record work on any size less than whole-plate $(8\frac{1}{2} \times 6\frac{1}{2})$ is useless. To this I must respectfully demur. Professor W. Flinders Petrie, in his little work on "Methods and Aims in Archæology," says: "The time and work of using whole-plate size are scarcely ever repaid by the results for practical archæology."

The questions of portability and expense are also very vital ones. When frequently moving from place to place in connection with the work the difference in weight between quarter-plate and

whole-plate will be appreciated.

Cost. Again, the cost of the initial equipment in whole-plate size outfit is about three times that of a quarter-plate, while the necessary plates and papers are at least four times



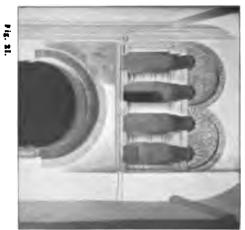




Fig 22.
SAXON DETAILS.
(1'ide p. 51.)



PHOTOGRAPHY AS AN AID TO THE ANTIQUARY.

as much. Also with a small camera the worker has the power of reproducing small bits of detail on which he might hesitate to use a large-sized plate.

The camera selected should be of a The Camera. strong, well-made pattern, possessing all the necessary movements of swing-back, rising and falling front. A very long extension should be regarded as a sine qua non, not only for telephotographic work, but also for use when copying small objects "life-size." The stand should be of a strong, rigid type.

As most archæological work is Lenses. done with a small stop, the more expensive anastigmats are not necessary, and a good type of R.R. lens will be found quite as useful.

For work with a 1-plate camera I would suggest R.R. lenses of 5 and 7 inches equivalent focus. and a wide-angle Rectilinear lens of 31-inch focus. A telephoto attachment will be found a most useful addition when dealing with small details at a height or at a distance.

In connection with the latter, a Minor ball and socket head for the tripod Apparatus. or a tilting table will be found of great value. It is necessary to have levels fitted, and in practice I prefer T shaped ones to circular. A compass which may be small enough to hang on one's watch chain will be found to be useful. No careful worker will start out without an exposure note book and an exposure meter.

The value of reproductions of Scale. archæological detail is greatly enhanced by the inclusion of a scale. excellent one is issued by the Society of Antiquaries at a small cost, but if an ordinary two-foot rule is introduced into the picture in an unobtrusive position, and in the same plane as the principal object, the same purpose will be served.

It is frequently necessary to obtain Artificial Light. photographs of details in dark corners, and in these cases artificial light of some kind must be used. Magnesium ribbon is extremely useful for objects which lie all in one plane, but

where there is any depth of focus it has but little penetrating power. When it is used it should be burnt in somewhat unequal lengths on each side of the camera, care being taken that the lens is shaded from the actual light. I have found in a very dark corner that 30 inches at f/11 gave a fully exposed negative. I have experimented with pure magnesium powder in several different flash lamps, but owing to their lack of portability or other causes, I have found them unsuitable. I have satisfactorily used a certain flash powder that is simply shaken together to mix, poured into a little tin tray and fired by means of a bit of touch paper. It gives an almost instantaneous and brilliant flash and leaves very little smoke, and is of great penetrative power.

Map or Plan. A very careful study of the plan and history of the place or object to be photographed should be made before arriving on the scene of operations. Indiscriminate work is worse than useless. In working in such buildings as a cathedral, church or abbey, a rough plan should be first made and the point of view as well as the location of each part shown, marking on it with a number which corresponds to that of the exposure in the note book.

This will be found specially useful if it be included when making up a collection of the prints of that particular place.

Lighting. When photographing details like piscinæ, etc., which may be unequally lighted, a white screen will equalize the illumination. A newspaper opened out may be used as a makeshift, and on one occasion I have used a tablecloth with excellent results.

In work of this nature it is best to use a fairly small stop (f/32) if time will allow. This is necessary if our negatives are to be subsequently enlarged. Professor Petrie recommends a stop (f/100) to be always used, but it must be remembered that this is for outdoor work under a tropical sun.

When photographing out-of-door objects bearing carving in low relief which it is required to show accurately, the lighting must be very carefully

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PHOTOGRAPHY AS AN AID TO THE ANTIQUARY.

considered. Direct front lighting gives a flat result. Side lighting should be chosen so that proper relief is given to the carving. Time and an unlimited capacity for taking pains alone will ensure success in this branch. Those of my readers who wish to see a model of investigation in this class of work should study the late Miss Margaret Stokes' work on "Durrow and Castledermot Crosses."

Her negatives were made on quarter-plates, the proper lighting having been obtained. In some cases stages were erected to get details. Then 12×10 bromide enlargements were made and the subject revisited. The pictures were then touched up with Indian ink and Chinese white, and the final negatives made from them.

Brasses. Brasses are much better reproduced by photography than by rubbings. An extremely handy camera was designed for the purpose by the Rev. Walter Marshall, but it is not, I think, on the market. It is of lantern-plate size, fitted with a 3" Cooke lens, and is of the fixed focus type. A table shows the exact space included when the camera is fixed at a selected height.

Carving. In dealing with carvings, such as bench ends and poppy heads, considerable trouble will be experienced with the lighting, and a background and reflector will often be necessary.

Fonts.

Fonts will nearly always require artificial lighting on some side, and here a safe flash powder is preferable to magnesium ribbon, as the latter is liable to splutter and burn anything it falls on.

The best method of storing prints is to mount them on suitable sheets of thick tinted paper and store them in portfolios, which should be carefully indexed. If preferred, these sheets may be roughly bound up in the manner described in No. 4 of *The Practical Photographer*.

Printing. If our prints are designed for deposit in a record collection, absolute permanence is required.

Architectural Styles, and How to Distinguish Them.

By E. W. HARVEY PIPER.

HE chief charm in the study of an old building is the ability to read its history by scanning its architectural features and noting its details. The power to give an approximate estimate of the date of a church or cathedral, to pronounce decisively on the period when

an alteration or addition was made, and to suggest the probable reason for the change, is not difficult of attainment, and a rough and ready appreciation of the great styles can soon be acquired with a little application of the general principles of constructional evolution, and a comparative study of examples.

will, however, often need re-adjust-First ment or modification by the con-Impressions sideration of whether the edifice under examination is situated on what was in the middle ages a main artery of traffic, on a navigable stream or in a port or harbour, or if the structure was, when being built, in a backwater remote from the tideways of large centres of population. In the latter case the treatment is not infrequently carried out in a style that lags a generation or so behind that then prevalent in localities more nearly abreast with the times. The crude forgeries of the restorer of a generation since have also to be watched for and guarded against—it is disconcerting, after confidently pronouncing a window to be an excellent example of Decorated tracery executed in 1345, to hear the old sexton explain to the friends who have accepted you as guide that he helped to work the sunk chamfers on them mullions for old Briggs, the builder, well nigh fifty years ago, and that he wrought the mouldings from drawings done by a young man sent down from Scott's office in London.



Fig. 24. Norman Period. (Vide p. 52.)



C. Greaty.



Fig. 27. Fig. 28.





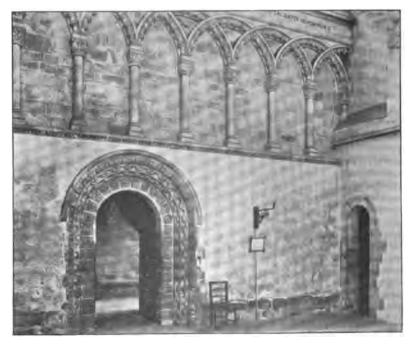


Fig. 26.

NORMAN PERIOD.
(Vide p. 52.)

ARCHITECTURAL STYLES, AND HOW TO DISTINGUISH THEM,

To the experienced eye, an indefin-Modern Work. able but obvious tameness. smoothness and mechanical regularity, a want of spirit and "go," all betray the modern restorationist's work, but even the seasoned architectural student is "caught napping" sometimes. "If I were you, I shouldn't trouble to sketch that bratticing in detail," suggested a bystander to an architect's pupil who was making a measured drawing of Bishop Bronescomb's tomb in the Lady Chapel of Exeter. "And why not?" sharply retorted the youth, intent on gaining the Pugin Medal, "I consider it one of the finest bits of Late Thirteenth Century detail in the cathedral." "Only because I did the whole of it myself when the tomb was repaired five years ago," replied his adviser, a well-known sculptor in the "ever-faithful" city.

We propose in this paper to confine our attention to the architectural styles in vogue in this country during the middle ages—those comprised in what is popularly known as the Gothic period, and to which all the monastic and ecclesiastical buildings erected after the Conquest and before the Reformation belong. We shall endeavour to indicate to the lay reader how he may roughly differentiate

the art of one period from another.

These styles are broadly divided into a series of four, which imperceptibly merge the one into the next by a natural and easily-identified gradation. The sequence of architectural fashions is not an arbitrary theory, but is a logical evolution, capable of demonstration by innumerable dated documents and historical records, and is as strictly chronological, as clearly defined, and as well ascertained as the succession of geological strata, or the unceasing cycles of changes in the modes of ladies' attire.

I.

The great architectural styles may, perhaps, be the more readily recognised and remembered if we compare them to the four seasons of the year.

Winter in such an architectural calendar will be represented by the Saxon and Norman periods the former may be regarded as corresponding to

the November, the latter to the December and January of our almanac of edifices.

Although the work of the later Saxon Period. Saxons hardly comes within our present scope, some passing reference to its characteristics will indicate how it influenced and paved the way for the more refined art which followed. The remains of Saxon buildings are necessarily scanty, but are, as Professor Baldwin Brown of Edinburgh has recently shown, more numerous than was realised thirty or forty years ago. Most of the Saxon edifices still existing are village churches erected during the earlier two-thirds of the eleventh century. The construction is rude and the materials are rough. The churches are small and low aisleless edifices, constructed of rough rubble masonry, but the angles of buildings and openings to windows are of squared ashlar, arranged alternately as long and short stones. The towers, like the bodies of the churches, are without buttresses, and may have on the centre of each face flat and upright strips of projecting masonry set as pilasters by way of ornament. The windows are small, either round or rectangular openings, sometimes with masonry above arranged as an isosceles triangle, and a singular feature reminiscent of Roman work is the use of turned balusters of stone for mullions between the lights. internal columns in the churches are squat tiers of drums, squared blocks of stone, above and below, representing the capitals and bases. The mouldings and other decorative features are hewn on the stone with the axe, the chisel not being then employed as a tool. Among the best known examples of Saxon work are the churches of Bradford-on-Avon, Wilts; Brixworth, Barnack, and Earls Barton, Northamptonshire: Deerhurst, near Tewkesbury; and those of Sompting and Worth, Sussex.

Norman Style. January and February in the wintry days of art are aptly represented by the massive and uncouth works executed in the Norman style. This phase of architecture was introduced soon after the Conquest, and pre-

ARCHITECTURAL STYLES. AND HOW TO DISTINGUISH THEM.

vailed during a hundred and twenty years, merging into the succeeding style at the beginning of the reign of Henry III. Thanks to our comparatively tranquil history as a nation, work of the Norman period is very abundant in this country, not only in our great Minsters, but in innumerable country churches scattered all over the land. The mode of construction is wasteful and unscientific, the walls consisting of needlessly thick masses of masonry, often resting on poor foundations, without footings over which to spread the weight, and there is little pretence at bonding the stones together. There is evident throughout a lack of knowledge of the theory of thrusts and stresses. The whole is "strong with the savage splendour of rude walls," as Wyke Bayliss has observed. The window openings are deeply splayed. The most obvious feature of this Norman work is the use of the round arch for the heads of windows and doorways. In the earlier work, that executed before the close of the eleventh century, carving is very sparingly employed, the arches are quite plain and the capitals are cushion shaped, the intention being either to decorate them with colour and gilding or to carve them in situ at a later period. Thus, in the western portion of the crypt of Canterbury Cathedral. constructed by Prior Ernulph, c, 1100, some of these "cushion capitals" still remain, having one or two sides ensculptured with interlacing ornament or grotesques, the other surfaces being perfectly plain. As the style advances, and craftsmen gain dexterity and experience, the work becomes lighter in construction, an increasing richness of carving is apparent, the chisel replaces the axe as a mason's tool, and the joints in the masonry, at first wide and gaping, are set so closely that a knife cannot be inserted between the stones. The last mentioned constructional detail is probably the most reliable means of distinguishing a building of the eleventh century and one of the twelfth century.

Norman Plan. The plan of a Norman church shows marked development from that of the Saxon days. Instead of the two rectangles placed end to end of nave and chancel, we

find aisles thrown out on either side, shallow transepts projecting at the crossing, and frequently the short choir terminates eastwards in an apse, around which a passage runs. This is still the case at St. John's Chapel in the Tower of London (a typical example of an Early Norman building), St. Bartholomew's, Smithfield, and the Cathedrals of Norwich, Gloucester, and Peterborough, but Norman apses since destroyed in the rage for lengthening and rebuilding choirs, formerly existed at Ely, Durham, Lichtield, St. Albans, and many other of our great Minsters.

The naves of churches were at The Nave. first covered with flat wooden ceilings, as at Peterborough and St. Albans, and at a later date were roofed over with circular vaults, the side aisles being finished with plain vaulting having no ribs. These roofs are carried by round arched arcades supported in turn by low and broad piers, either rectangular or octagonal. columns are employed they are round, with a square abacus, like a flat tile below the capital. At the Cathedrals of Norwich and Durham, and the Abbeys of Lindisfarne and Waltham, some of the columns are carved with fluting, diagonal and zigzag sculpture, which has in its setting out no relation to the joints of the masonry. The windows are narrow and deeply splayed, the doorways much recessed, with advancing orders on either side, which in later examples is exceedingly rich. Over the flat lintel is a semi-circular arch, and the space between a tympanum is often filled with bold figure carving, frequently as in the wellknown Prior's doorway at Ely, representing our Lord in Majesty. Fig 15. A great variety of ornament is employed in mouldings, including the chevron, the billet, the nail head and double cone.

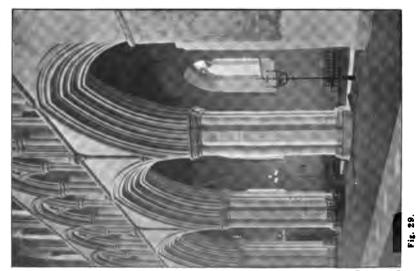
Decoration.

A favourite method of surface decoration is to panel over a wall with a series of flatly carved, round-headed arches on pilasters. Springing from the centre of each opening, a second sequence of precisely similar pilasters, with circular archways above, is carried along, the two sets of arches intersecting at equal

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Fig. 30. EARLY ENGLISH PERIOD.



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Fig. 31.

EARLY ENGLISH (MODERN.) Digitized by GOOGLE

(1 not p. 52)

ARCHITECTURAL STYLES, AND HOW TO DISTINGUISH THEM.

distances as a range of acutely-pointed arcading. This was formerly imagined to have been the origin of the pointed arch, but the idea is far-fetched and historically is as untenable as Charles Lamb's quaint suggestion as to the origin of roast sucking pig.

Perhaps the best examples of Early Examples. Norman, accessible to Londoners are the Keep of the Tower with its chapel, already named, and the central tower of St. Albans. Of the Middle period of this style the transepts of Winchester, Norwich, Ely and Peterborough Cathedrals, and the central and lower portion of the west front of Lincoln, are typical. Of the latest and richest, or Transitional, phase of Norman the naves of Norwich, Ely, Peterborough and Durham Cathedrals, St. Bartholomew's, Smithfield (much restored). and the churches of Iffley, Adel, Kilpeck and Barfreston may be cited. Work of a lighter type is to be seen at Gloucester Cathedral and Tewkesbury Abbey, both of which have in the naves circular columns more stilted and slender than any coeval ones elsewhere; and work of a still more advanced character is to be seen in the chapter-houses of Bristol and Gloucester and the choirs of the Augustinian priory churches dedicated to Christ at Oxford and on the Hampshire Avon.

The main reasons which governed the evolutions of the later styles from the Norman were two—the persistent attempts, made with growing success, to improve the admittedly bad lighting of earlier buildings, and the desire to substitute for clumsy masses of masonry in walls and vaults more scientific methods of sustaining the weight and thrusts by providing counterpoises and thickening only those portions of the fabric on which the

stress comes.

II.

Early English
Style.

The joyous spring-tide, with its lightness, buoyancy and half-revealed promise of further development into luxuriant foliage, blossom and fruit, is a fitting symbol of the second phase of our national architecture. It has been christened the Early English style, although the terms Thirteenth

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Century, Lancet and Pointed have also been applied to it. This elegant and refined mode flourished during nearly a hundred and twenty years, from the closing days of the reign of Henry II., in 1187, until the troublous end of the rule of Edward II., in 1307. The style possesses all the vigour of early manhood, all the purity of dawning womanhood. No longer massive, flat-featured and clumsy, the work of this period is marked by a severity, a freedom and a chaste beauty never equalled before nor since, and a refined regard for proportion in the masses and voids which delights and satisfies the eye.

The radical and most easily noted Important difference between the Early English Differences. style and the last, is the substitution of the pointed for the semi-circular arch, giving to the whole treatment a vertical tendency. Thirteenth century art is truly "tip-tilted like the petals of a flower." The openings for doors and windows are now tall and narrow; the buttresses are bold in their projection, and are crowned by pinnacles, and the roofs are steep-pitched. The vaulting is in oblong in lieu of square compartments, and the weight of vault and roof on the buttresses induces the builder to plan the wall between as a mere webbing or screen. The proportions are more slender and aspiring. Internally, groups of detached shafts of Purbeck marble, banded across at intervals, support ranges of pointed arches. The windows, at first very plain, are presently arranged in pairs and triplets, and are splayed widely, and by degrees the piercing of the spaces above and between the groups leads to the development of tracery. The mouldings are no longer cramped and square, but are carved on sloping surfaces and carried along in bold sweeping lines, with a free alternation of rolls and fillets, and deeply cut hollows. A characteristic ornamentation for these concave mouldings is a projecting four-petalled flower, with depressed points to petals and raised centre, absurdly named the "dog tooth" decoration. The earlier capitals and bases consist of a series of deeply hollowed rings resembling up-turned bells, but at a later period stiff and crisp foliage, curled up like budding

ARCHITECTURAL STYLES, AND HOW TO DISTINGUISH THEM.

fronds of brake fern or celery, is profusely employed for capitals, bases and crockets.

Examples. To this Thirteenth Century period belong the choir, transepts, and eastern bays of the nave of Westminster Abbey, and also its chapter house; Salisbury Cathedral, with the exception of its spire and chapter house; the presbytery and galilee forming the eastern and western extremities of Ely Cathedral; the chapter houses of Oxford and Chester; the choirs of Lincoln, Southwell, Rochester, Pershore and St. Saviour's, Southwark; the north transept of York Minster, and innumerable parish churches.

III.

The blazing noontide of summer in Decorated English art is like its prototype in Style. nature, the most short-lived and brilliant of our seasons. The extreme duration of this period in Gothic architecture, generally known as the Decorated or Fourteenth Century style, is comprised within the seventy years of the reigns of the Second and Third Edwards, 1307-77. main characteristics are an evergrowing freedom and richness of ornamentation evinced in every detail, and an exuberance especially displayed in the treatment of vaulting ribs and window tracery. The first signs are apparent of that attempt to clothe construction with applied decoration, which ere four generations had passed away stifled and choked all progress.

The most striking features are the Striking wide spacing of bays, the broaden-Features. ing of all arched openings, and the improvement of the lighting. Clerestory windows are made loftier, wider and more numerous, until the intervening stonework becomes almost perilously slender. Another and more daring constructional experiment is tried at the very end of the thirteenth century. The side aisles are greatly increased in height, so as to allow of raising the piers and arcades, and thus the triforum gallery, and even the clerestory is in some cases, as at Bristol Cathedral, dispensed with. One advantage gained by this mode of construction is to afford a

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fresh means of providing for the thrust of the stone vault, not with flying buttresses and external piers, but by bringing into play the contra thrusts of vaults thrown over the aisles, these being saved from sliding outwards by a series of deep buttresses. weighted with pinnacles, or as at Norwich with apostles' statues. The groining ribs, which in the Early English style accentuated the meeting places of different planes of vaulting, are now developed into a spider's web of ridge and lierne bands, and the panelling between these ribs is reduced to a thin connective tissue of clunch stone or chalk. widened windows are divided by upright bars or mullions into several lights, and the heads are filled with varied tracery, flowing, reticulated or geometrical patterns being adopted for adjoining windows that have evidently been executed simultaneously. The doorways are less deeply recessed than in the preceding century; roofs are lower in pitch, and the clustered shafts in piers are no longer disconnected, the whole group being cut out of a single stone. A profusion of diaper and other carving is introduced, and there is direct copyism of flowers and foliage, the sculptor's motif being naturalesque and no longer stiff and conventional.

Examples. Examples of this Decorated style are, owing to the short time during which it was prevalent, less common than instances of the other three periods. The chapter house and choir screen of Southwell, Alan de Walsingham's matchless Octagon and Lady Chapel at Ely, the Abbey Gate-house at Bury St. Edmund's, the choir of Bristol, the Percy Monument at Beverley, and the east windows of Carlisle and Selby may be specially noted.

IV.

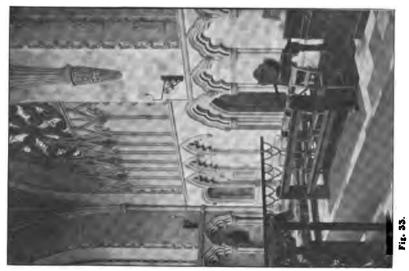
Perpendicular. A glorious autumn, in its coarse magnificence giving tokens of approaching decay, marks the fourth and latest period of English Gothic, that recognised as the Perpendicular or fifteenth century style, and although the glowing hues of sunset but prelude the coming extinction of the art in a night of classic formalism, its latest phases are of great richness, and have a

Fig. 35.

F. C. L.







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Fig. 36.



Fig. 37.





Fig. 38.



Fig. 39.

F.C.L.

DECORATED PERIOD. (Vide p. 54)

ARCHITECTURAL STYLES, AND HOW TO DISTINGUISH THEM.

grandeur and an originality of their own. So selfsufficient have our craftsmen become that this culmimating effort of our architecture is essentially an independent and insular art, national and distinctive in character, and without parallel on the continent. This Perpendicular style held sway during one hundred and thirty years, from the days of Richard the Second to those of Henry the Seventh inclusive.

A tyro in architectural knowledge Characteristics. will readily distinguish fifteenth century work. The depression in all the arch openings, begun in the Decorated period, rapidly develops until the heads of arches are first obtusely pointed, then struck from four centres and finally enclosed under a square head. There is a tendency to transfer all the weight of walls and vaults from internal piers to outer buttresses. But the dominant note is struck by the verticality and growing horizontality of all visible lines, alike in construction and in ornamentation. Window mullions are carried the full height, are thickened and crossed by heavy bars or transoms, until, in the great west windows, with which the more modest earlier ones are replaced in most of our cathedrals and large churches, the stonework becomes a mere gridiron for the display of rectangular panels of painted glass. Wall surfaces and even the blocked up and squared triforia spaces are treated as grounds for skin deep panelling, the roofs are wider, lower, and carried by hammerbeams. The mouldings are wide. shallow and coarse, and the motif for foliage has again reverted to conventionalism of a mechanical type. Carved woodwork is at its best, and screens, stalls, misereres, canopies, and the poppy head ends of benches, provide the sculptor in oak with opportunities for full and vigorous work, too often irreverent and even coarse in its humour. Decoration becomes trivial and stales by repetition, and gradually the work, although admirably executed from a technical view point, sinks into the mechanical and commonplace.

The debasement of our art is accelerated by the Renaissance and by the loss of the old religious

fervour, and Gothic architecture slowly dies out with a long drawn out but ineffectual spluttering among the embers.

Examples of Perpendicular art Examples. abound. The earliest dated work is that in the south transept of Gloucester, but the choirs of that cathedral and those of York Minster and Cirencester Church recur to us all, while notable experiments in veneering Norman structures are the nave of Winchester and the choir of Norwich. In the case of the latter cathedral, which is not so familiar as William of Wykeham's work, one of the latest and most careful architectural writers dwells lovingly on the "daring engineering feat," involved in supporting the massive Norman walls of triforium and clerestory, while the builders of the fifteenth century renewed in their own style the piers below, whereas close study of the cathedral choir at Norwich since the recent cleansing from colour wash will show unmistakably that "substantial Perpendicular masonry" is but a dexterous casing of the Norman with stones at most 21 inches in thickness.

We have endeavoured to indicate to the architectural photographer in the most concise manner some of the constructional and decorative principles which underlie the successive changes in architectural fashions, but these changes were also largely influenced by religious symbolism, the rivalry of priests, monks and laity, the struggles of contending monarchs and barons, and other motive forces which it has not been possible to enumerate in a short paper. We trust enough has been said to excite the interest and whet the appetite of some who had not previously given the subject much

attention.

The amateur may also be reminded of a great historic building easily accessible from London in which every period of mediæval architecture from Saxon to Tudor is represented—the church of the mitred Benedictine Abbey of St. Alban. Here the beginner will find useful practice in essaying to discriminate between the various styles and works of many dates, often harshly clashing with each

ARCHITECTURAL STYLES, AND HOW TO DISTINGUISH THEM.

other in juxtaposition. Here, too, it will be a task of no great difficulty to detect the heavy hand of the Gothic revivalist in the amazing and amusing modern fronts at the west end of the nave, and to

the north and south transepts.

The architectural photographer will add greatly to his enjoyment in the pursuit of his fascinating craft if he seeks to pick out the salient and distinctive features of the building he proposes to take, to ascertain the reason for the particular treatment and the approximate date at which it was executed. This habit of thought will enable him to preserve an impartial eclecticism, whereby he will perceive the interest and beauty of most of the work of every period and he will speedily adopt as his own the motto of Benedict Spinosa:

"Not to dislike, nor to like, but to understand."

Pictorial Pointers for Architectural Photographers.

By FREDERICK H. EVANS.

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OO large a proportion of those who enter a cathedral armed with a camera and the Dean's permit not only have no definite idea of what they should try for, or even what they want to try for, but also have only a very indefinite idea as to how to set about it when they do

begin to see things worth trying for.

General View. Usually the first thing attempted is a view along an aisle or up the nave from the west door. The wrong way for this is that too-often-committed error of placing the camera right in the centre of the aisle or nave, by which means the perspective is made violent and exaggerated and a sense of real distance lost, though it was aimed at. The camera should be placed for the nave view as near one side as will just prevent the piers or pillars on the side nearest the camera from running into an indistinguishable line or wall. For the aisle the same rule applies, but before deciding to work from the extreme end of the aisle,

as is often done, let the worker take his camera fully one-third along the aisle and note how much better a picture it makes, giving an ample sense of distance and length and gaining greatly in detail and value.

Arches. In composing a picture great care should be taken that no unfinished or cut-through rounds of arches are included; they make ungainly and very dissatisfying arrangements. A pillar without at least a portion of its capital being included running up through a composition is to be avoided; the cut-off abruptness is most inartistic and worrying. If this cannot be done without otherwise spoiling the composition, see that an adjacent pillar, like it but plus its capital, is included. This will then show what the minus one would be like, and perhaps thus serve to further suggest height, etc.

Near Objects. Nothing at all near the camera must be included in the composition, as distortion, or, more correctly, undue magnification, will result and prove very unpleasant. Always include as much floor or base to the subject as is reasonably possible; if too little is given, a cut-off or top-heavy feeling is suggested in the print—a want of balance and support to the composition is sure to result. If an arch is the main element controlling the composition, do not have too much roof over it, otherwise it will appear dwarfed and the subject lose symmetry.

Never start an exposure without Camera having fully tested the camera in Vertical and every direction with the spirit-Level. level. Even if this has already been done, it is as well to go over it again just before putting the plate-holder in position, as some slight movement may have been made and so altered the level as to call for correction. If this is scrupulously seen to, any false lines in the composition can then be rightly attributed to the building itself. This will be the case often enough to make the most careful use of the level an inflexible rule.

POINTERS FOR ARCHITECTURAL PHOTOGRAPHERS.

In choice of lighting, before start-Lighting. ing an exposure make sure that there will be sufficient time for a full exposure before the special effect being tried for has passed away with the sun's movement round the building. It will sometimes happen that one starts an exposure too late, and before the shadowed parts of the subjects are at all properly exposed the moving of the sun has so changed the entire aspect of the scene (or the sun perhaps cruelly peeps through a window included in the subject, and so halates the whole), that the negative proves a failure. Do as little work in the middle of the day as may be. The sun is most nearly vertical then. and therefore makes all the shadowed portions darker than is easy to deal with. Charming effects are to be seen in the early and quite late hoursbefore nine and after five—but it too often happens that then the actinic power of the light is insufficient for a full exposure to properly realize the effect aimed at. Experiments, however, should be made in these hours as often as is possible.

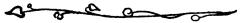
It would be a good plan for the Lenses. worker who desires pictures rather than views, to make at least one visit to a cathedral, and instead of the usual 53-inch lens for his 1-plate camera, to take an 8 or a 9-inch lens, and compel himself to find subjects to suit it, and that will compose properly on his ground glass. The lesson will be a valuable one, showing how much more charming these "bits" will be as pictures, and as souvenirs of the visit, than the usual long length views up and down and across and across. If the only lens of that length that the worker possesses is the half of a shorter focus lens, let him not fear to use it though it be a single lens; no distortion need be feared, the great length of focus relative to the plate with which it is used will quite prevent any wrong lines at the sides. Few workers on interior subjects carry a sufficient variety of lenses. usually so difficult—often quite impossible—to alter one's point of view by moving the camera nearer or farther back. If a change of focus from the one usually used to one that exactly or more nearly fills the plate with the desired subject cannot be

made, a great waste in trimming the print will ensue. For a 1-plate camera lenses of focal length from 41 to 10 inches should be carried, say, 41-6-8-10 foci: with a 5×4 camera, the foci may be 41-6-7-9-10-12. With these, all reasonable compositions can be made to fill the plate satisfactorily in one dimension, and of course it is but rarely the case that both horizontal and vertical dimensions can be got perfectly on the plate; trimming in at least one dimension must always therefore be necessary. For my whole-plate camera I carried 8-inch, 10-inch, 12-inch and 14-inch lenses, with the very rare use of 51-inch for extra difficult subjects in very confined positions. With my 10×8 camera I use the same set, minus, of course, the 51inch lens, and plus a 19-inch single lens. The 14-inch is also a single lens, and I endeavour to use the 19inch as often as I possibly can, as it is, of course, the golden rule in this aspect of our work always to use the longest focus lens that existing conditions will permit.

When adjusting the camera keep it as low as convenient. It should be remembered that artists almost always paint or draw from a sitting position, but most photographers take their pictures from as high an altitude as their tripod will permit. This is generally a mistake, at least in picture-making, and often leads to that extremely unpleasant aspect of the level floor being apparently that of a steep incline. Even when taking bits of detail, and height is necessary to avoid tilting and using the swing-back, let it be as little as possible. For it must be remembered that all carving in a cathedral was made to be observed from the floor, and not from a position on a level

with it.

Exposure. As to exposure, a safe rule for the tyro to adopt would be that whatever the exposure he may have decided on let him give exactly double, if he will not spend a plate on a lesson by giving two exposures on the same subject, one with the exposure decided on and one with treble that time.



Non-technical jottings on English Church Architecture.

By THE EDITOR.

W

ITH the hope of tempting the architectural photographer to become also a student of architecture, a step he will certainly never regret taking, we are here reproducing a few typical bits of English Church architecture. These have been selected as far as

our available space permit with a view to showing a few of the salient features of the various periods. It is very fortunate for Londoners that in the Abbey Church of S. Albans they may find Roman materials, and work of the Saxon, Norman, Early English, Decorated, Perpendicular and "Very Modern" styles. Therefore we have purposely selected the greater number of our examples from this building. We now propose to recapitulate in non-technical language the salient features of these five styles of English Church Architecture.

Masonry often includes tiles built in 1000-1070 A.D. among the second line one way and then at right angles in the manner called herring-bone. Fig. 21. Towers are square without buttresses. At the angles stones are set alternately upright and horizontal (long and short work). Figs. 19, 20.—Windows often triangular headed or formed of one large stone (Fig. 20) with "long and short work" round the opening (Fig. 20). Frequently a single stone shaft or "baluster" divides the window opening. Figs. 20, 21, 22.—These shafts may have the appearance of having been turned in a lathe. Doorways may be similarly triangular or round headed. The impost or stone from which the arch springs is usually a plain block, but may have rude mouldings. Figs. 19. 21, 22.—Sculptures are rare and somewhat crude. Fig. 19.—The carving tool being the axe. The chancel and tower arch (Fig. 19) usually show long and short work.

The early work is usually plainer Norman, 1070-1200 A.D. than the later work, but plain work is not always to be regarded as early Norman. The arch is semi-circular-at first flush with the wall, and later recessed (Fig. 27). Windows and door at first small (Fig. 27). Later are larger and richly ornamented (Figs. 15, 23, 24, 25, 26). Windows at first have only a single light (Fig. 27). The zigzag ornament (23, 24) is a very common form. But there are a large number of other forms also frequently met with. Figs. 15, 26 shows enriched style. Note the semi-circular ("tympanum") carving over the door (see also Fig. 15). The piers are solid masses (left margin Fig. 22, right margin Fig. 29), which may be square, round or square recessed (Fig. 22). Arches also are often square-edged. Figs. 21, 22, 27.—Shallow arcading is common, like that in 26, now placed above the door. This arcading is usually near the ground, with a shelf or sill for seats. Capitals often cubical masses, perhaps with lower parts rounded or carved. Figs. 23, 24.—The base a squared stone, which may be chamfered or quarter-round, or slightly ornamented. Fig. 24.—Towers round or square. Fig. 28.—Buttresses have but slight projection and usually plane (Fig. 28) Porch usually does not project more than a few inches from the wall surface, but the doorway is recessed. Figs. 15, 23, 24, 25.—East end of church often semicircular (apse).

Early English, stantial Norman style, with round 1200-1300 A.D. stantial Norman style, with round arch and massive masonry, to the pointed arch and clustered shafts, seems to have been as rapid as it is different in character. General characters—Lightness, long narrow "lancet" windows, singly or in groups, bold projecting buttresses; high-pitched roof, pointed arches, supported by slender pillars. Figs. 29, 30.—Mouldings are chiefly "rounds," and often deeply recessed, or angles cut with a chamfer. These give a bold light and shade effect. The so-called "dog-tooth" ornament is characteristic of the period. Fig. 32.—The ornament suggesting an ornate shepherd's crook and called a "crocket" is

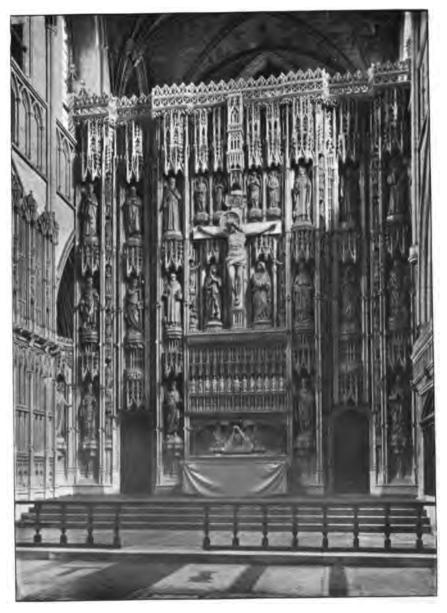


Fig. 40.





Fig. 42.

PERPENDICULAR PERIOD.

(Vide p. 55.)



Fig. 43.





JOTTINGS ON ENGLISH CHURCH ARCHITECTURE.

also characteristic of the period, shown in Figs. 16, 18 and 57. The conventional foliage is shown in Fig. 32, and though used elsewhere is characteristically employed for bosses and capitals.



Fig. 56.



Pillars are slender and may be plain, but more often clustered. One characteristic is the detached shaft (often of Purbeck marble), long and slender, only connected with the central shaft by its base and capital, or occasionally by a light intermediate banding. Arches, pointed and single, in pairs or threes (Figs. 29, 30, 44, 45). They are frequently enriched by the so-called "dog tooth" ornament. Fig. 56. Modern work shewn in Figs. 31, 32. The early examples are usually plain, with little or no enrichment. Windows are usually characterised by their narrowness relative to their length. Squareheaded windows are not uncommon. windows are found in all periods from Norman onwards. Cusps are very frequently met with in this period. Doorways are usually pointed, but sometimes trefoiled. Porches, though usually shallow, project much further than in the Norman period. Vaulting usually shows the employment of ribs, which often meet at a boss. Fig. 30. (Note the Norman arch in the middle of the rib vaulting, indicating a junction line.) Buttresses are bold and projecting, and often diminish by well-marked stages. Flying buttresses are introduced in this period. Towers are now more lofty in proportion to their width. The east end or chancel is square, and frequently has a group of three lancet windows. The mouldings at the base

intention of these hollows.

of columns are often so placed that the hollow would hold water, but this is of course not the

The early English style gradually Decorated. 1300-1370 A.D. passes by almost imperceptible into the Decorated style. And we may find isolated features, e.g., mouldings, windows, etc., which we hesitate to place in either style, because partaking largely of both. As this well-marked style only lasted for a comparatively short time examples are not so frequent as might be wished. General character—Rich ornamentation, large windows, flowing lines of tracery trefoils, circles, etc. Here the ornament is not an addition, but an integral part of the construction. Window openings are often cusped along the inside of the wall thickness. Square-headed windows are not uncommon. The top of the window may also be a part of a circle, or the window may be formed of the segments of a circle. Figs. 33, 35, 47.— Circular windows are also common. Fig. 33.—The clerestory windows of this period are often tri-angular. Fig. 35.—Tracery may be geometrical, flowing or "flamboyant," i.e., flame-like. Figs. 37, 38.







Fig. 59. Fig. 60

The mouldings are not so deeply recessed as in the Early English period. The quarter round and the roll moulding are characteristic. Fig. 58. Another strong character of this period is the "ball flower" ornament well shown in Figs. 36, 59, running round the inner edge of the window opening. It will also be seen in several places in Fig. 33. Another frequent ornament of this period is a four-leaved flower with ball centre, cut somewhat boldly, giving strong light and shade effect. Fig. 60. This is unfortunately not shown in any of our photographs. Battlements introduced in this period become a strong feature during the Perpendicular period. Pillars seldom have detached The characteristic treatment of foliage, fruit, birds is well shown in Fig. 34. Doorways are larger, wider, and often richly ornamented. Fig. 39

is a simple and early example. They have usually a dripstone which may terminate in heads, bosses of foliage, etc. Fig. 39. The porch may be shallow or projecting, and is sometimes of wood. The arcading running along the walls, see Figs. 33, 36, 46, 47, is of a richly ornamented character and the use of elaborated crockets or bunches of foliage, Figs. 33. 34, is frequent. The Piscinæ or water drains for use after washing the communion vessels, are frequently richly ornamented, Fig. 34. Buttresses are often made a strong feature in the decoration as well as construction of the building. The East end usually has one large window, Fig. 38. Note the elaborately carved "corbel" from which the arch springs towards the right-hand upper corner in Fig. 33. See also the ornate character of the canopies close to the circular window in this Fig. 33. A glance at the tracery of the Perpendicular. 1370-1550 A.D. window to our left in Fig. 35. as compared with 37 and 38 shows a change is taking place. The central mullion runs to the top and is accompanied by two other vertical parallel lines. The name well describes this tendency, i.e., to emphasise perpendicular (and horizontal) lines. A rapid glance at the general effect in Figs. 41, 42, 43, 40 will show this cultivation of the perpendicular as the chief feature—while the horizontal line is also strongly pronounced. Panelling surfaces in the manner shown in Figs. 41, 42, is very common both inside and outside a building. Windows are often large in size but cut up into a large number of more or less equal sized rectangular spaces by vertical mullions and horizontal transoms so that the window from the inside almost suggests a network of stones. Buildings of this period, domestic and ecclesiastical, are frequently embattled and the battlements richly ornamented with diaper-like designs. Doorways are wide and nearly always square-headed, embracing a somewhat depressed arch. Fig. 43.—Towers are large and massive, but so richly ornamented that their size does not at first impress us. The angles frequently have double buttresses, and the corners are carried up into pinacles. Porches usually project boldly, and are

panelled inside. The well-known "fan tracery" of the vaulting needs only mention. Mouldings are now more shallow, i.e., are broad rather than deep. Crockets are frequently in use, but take on a somewhat square outline. The foliage is often suggestive of a wreath embracing a pillar or capital. Probably the beginner will have less difficulty in readily distinguishing this style than any other. Its general character when once seen is not likely to be mistaken.

Cautions. Do not attach too much importance to any one feature, i.e., the shape of an arch, or moulding or ornament. In the good old times convenience was often the determining factor. Moreover, later workers copied earlier details. The dates given in our divisions are to be taken only as quite approximate and convenient guides. In the same year two markedly different styles of building might be going on within a distance of a day's journey.

Practical Points for Architectural Workers.

By VARIOUS CONTRIBUTORS.

The point of view in interior photography is a matter of first importance. It is no exaggeration to say that a few inches to right or left, higher or lower, may make just the difference between a failure and a success. First, a few words as to the height of the lens from the ground. No rules can be laid down, but experience goes to show that, in a broad and general way, the view point of a horizontal composition should be lower than in a vertical picture. Figs. 46, 47, may serve to exemplify this point. These two views are exactly complementary to one another in the sense that in Fig. 47 the lens was pointing in a direction more or less south, while in the other the lens was pointing in exactly the opposite direction. The same pillar is shown in both pictures. In the case of F g. 46 the lens was as high as an ordinary tripod would hold the camera, focussing being done while standing up. In Fig. 47 the camera was lowered until focusing had to be done by kneeling on the floor. Roughly we

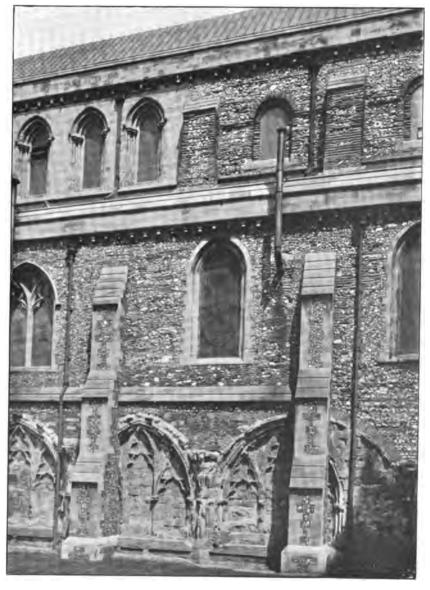
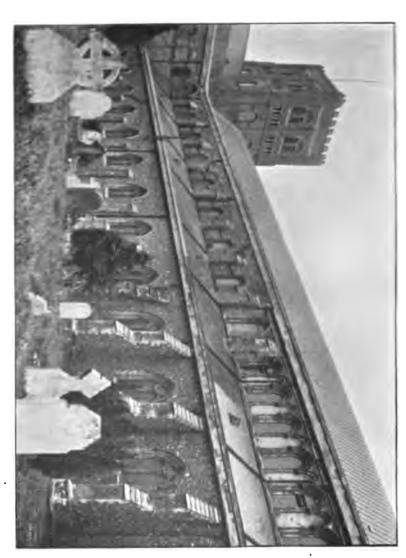


Fig. 44.

SOUTH SIDE, ST. ALBANS.
(Showing Junctions. Vide p. 60.)

F.C.L.



PRACTICAL POINTS FOR ARCHITECTURAL WORKERS.

may say that the view points correspond to standing and seated figures. The difference in these two cases is not very marked, because the most distant part of the floor in either case is not very far away. But one need not look very far among a collection of interiors without seeing the effect of a high-view point with a distant floor. This usually suggests that the floor is not level, but is rising up towards the distance.

Now in order to appreciate the point of the broad principle just mentioned, we must cover up about one-third of the upper part of our vertical picture, and a corresponding one-third of the left-hand portion of the horizontal example, thus leaving us two similar shaped portions. If this be done we shall at once see how the high-view point spreads out the floor, while the low-view points gives a

much pleasanter suggestion of floor space.

Pictorially these prints may give us several useful hints or warnings. In Fig. 47 we have no less than three large windows facing us. These three patches of strong light compete with each other for our attention. As a composition it would have been better had we been able to hide the window on our left by a pillar, or by cutting away the left-hand third of the print. If this window be covered over by the hand the picture will be seen to gain in unity of effect at once.

Here again we see the contrast of chairs and no chairs—one need hardly say which is preferable. The rich Decorated arcading, aumbry and piscina

will be noticed.

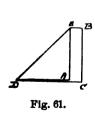
In Fig. 46 we get a peep of the panelled back of the perpendicular screen shown full face in Fig. 40. We also catch a narrow glimpse of the upper part of the watch gallery shown in Fig. 41. The sedilia on our left, with their foliated and crisped Decorated work, will be noticed (Fig. 46). But our chief pictorial interest in this case is due to the contrasting of our highest light with the strong gloom of the roof above. This centralising of contrasts generally has the desirable effect of keeping one's interest in the picture. Indeed one might almost lay it down as a guiding principle that windows or other strong lights should not occur along the margins of our picture.

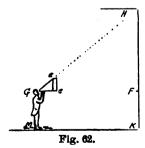
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THE PRACTICAL PHOTOGRAPHER.

Photographing Ceilings.—In this connection our difficulties are threefold. First, the ever-present question of exposure: second, the position of the camera; third, focussing. If now our tripod is of such a form that the camera can be held with lens pointing vertically upwards we can then manage somehow-e.g., by lying on the floor or on two chairs—to see the focussing screen. But if we cannot see to focus we must adjust the lens by calculation. The first step is to ascertain the height of the ceiling above the floor. The following is a useful, simple and practical dodge: Take a halfsheet of note-paper with clean-cut edges. ABCD, Now fold the corner A over so as to Fig. 61. coincide with the line DC. The crease or fold DE is neatly and carefully made. In Fig. 62 we may imagine H the ceiling and MK the floor. The operator G carefully notes some object, F, on the wall of the room, such that it is on a level with his eye when in a standing position, i.e., FK is equal to GM. He now holds the folded paper Fig. 61 to his eye so that GC is horizontal, and walks backwards, keeping "half an eye" along the horizontal line GF, and at the same time looking along GE. When the line of sight GE just enables him to see H, the junction of ceiling and wall, his position is noted. The angle EDC being half a right angle tells him that FH is equal to FG or MK.





But he will very probably be placing his camera on the floor so that the distance of floor to ceiling KF plus FH is equal to KF plus FG or KM. This is readily ascertained. We now can easily focus on some well-lighted object at this distance, either

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PRACTICAL POINTS FOR ARCHITECTURAL WORKERS.

inside or outside the building, as convenience dictates. We thus have our lens adjusted so that when the camera is laid on the floor in the centre of the room the central part of the ceiling will be in focus. The next question is "will the entire ceiling be included on our plate?" The length of the ceiling is (presumably) the length of the room. If then we put our camera at the same distance from the wall of the room as the ceiling is from the floor we can then see if the length is included. Similarly for the width of the ceiling or room. Of course having once adjusted the focus some care will be taken not to disturb the adjustment.

Suppose that we wish to take a general view of the ceiling from the centre of the floor, we may easily ascertain where the centre is by remembering that it is where the diagonal lines cross. Lay the camera down, and adjust a chair leg so that the camera, the leg, and one corner are in straight line. Now if the leg, the camera, and the opposite corner are also in line we have got one diagonal. It is then easy to get the other in this way.

As to exposure we must remember that a ceiling is almost always lighted by reflected light, and therefore requires a proportional increase of exposure as compared with those parts of the room in direct light. But it should be noted that when snow is on the ground and the building or room has fairly large windows, the ceiling may be then lighter in mid-winter than it is in mid-summer.

The colour of the carpet, floor, etc., should be noted. Thus a red table-cloth or carpet will not give us such useful reflected light as a white table-cloth or polished light wood floor. We may then gather the hint that ceiling exposures in small rooms may be shortened by covering table and floor with sheets, or even newspapers.

No useful figures can be given, as so much depends on the size of the windows, colour of the roof or ceiling, etc., besides speed of plate, stop, time of year, etc.

As a general rule a small part of a ceiling is more effective and interesting than a large portion on a small scale.

THE PRACTICAL PHOTOGRAPHER.

The Historic Land Marks of a Building.—The architectural photographer who wants to infuse into his pictures something of the spirit of the building must first become acquainted with its past history and associations. He must in imagination see the building growing and being altered from time to time. The best mental aid to this is the examination of such "junction lines" as may be found. This may be only a slight change in the style of the masonry, different jointings, mortar, stones, etc., or it may be a well-marked change in style and form.

Again, pictorial effect may often be greatly aided by taking advantage of the contrast of one age with the other, the old and the newer work side by side, often bringing out the beauties and characters of each other by force of juxtaposition and contrast of styles. In this case one should not attempt to include more than two styles—or the picture is apt to become puzzling rather than pleasing. In the two illustrations of S. Albans here given, we have selected our view points first to show as many styles as possible at a glance and so be useful to the student and at the same time we have exemplified by their aid some common mistakes from the pictorialist's aspect of the matter.

In Fig. 44 we have a bit of the south outer wall of the building, i.e., south aisle extension. The ruins of the old Roman town (called Verulam) evidently supplied the Norman builders with plenty of material in the form of flat tile or "Roman Bricks"—we may see these freely used in the right-hand upper portion of our illustration. These Roman bricks are thinner and wider than English bricks, which are seen in part of an arch towards the right lower In the right upper corner we have a window and two buttresses belonging to the Norman period. On a level with these, to our left, we have three Early English lancet windows (restored) and also notice a violent contrast in the style of the masonry. Below them is a Decorated window, and below again are the remains of some beautiful arcading of late Decorated style which doubtless formed part of the cloisters.

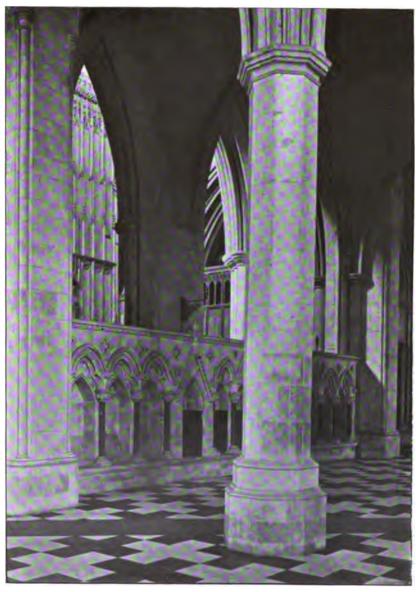


Fig. 46.

DECORATED PERIOD.
(High View Point. Vide p. 56.) igitized by GOOGIC



PRACTICAL POINTS FOR ARCHITECTURAL WORKERS.

interesting remains are sadly marred by the very modern buttresses. Thus, at a glance, we have Roman, Norman, Early English and Decorated work.

Pictorially, the faults are several. First, too great a mixture or variety of styles. Next, the lighting is flat and feeble. The picture is too large for the space it occupies, and we have not enough foreground to suggest space and give a feeling of proportion. And there is nothing to convey any sense of size or scale. The chief impression given is, that we are looking, not at a building, but at a flat wall.

In Fig. 45 we have a view of the north side of this nave. Here, again, we may trace several landmarks in the stages of the building. We have the tower with Norman, and most probably, Saxon portions. The north transept shows Early Norman work. The clerestory of the nave next the tower is again Norman. This passes to Early, and later Early English (restored), while the north aisle shows different phases of Decorated work.

Pictorially, this example shows the great accentuation of apparent length due to our being too near the western part of the building. Although the nave is a long one yet this view showing the long unbroken line of the roof ridge is not a pleasant one. Then, again, the light is monotonous and uninteresting. The tombstones in the foreground, often inevitable in church photography, are here too conspicuous. The blank cloudless sky is

emphatically undesirable.

To Prevent Tripod Points Slipping on Smooth Floors.—(1) Push the point of the leg into a round piece of cork. (2) Slip over the point a bit of soft rubber tubing just long enough to enable one to feel the point when the finger is placed flat over the tube end. (3) Knot together three pieces of rough tape, and then fasten the three loose ends to the tripod legs at the middle or lower joint of the leg. (4) Three pieces of common rough card (straw) board placed on the floor for the points to rest on will generally be found quite efficient.

Range of Exposure in interiors may range from the fraction of a second to hours. Two fairly typical cases are shown in Figs. 48 and 49. In the

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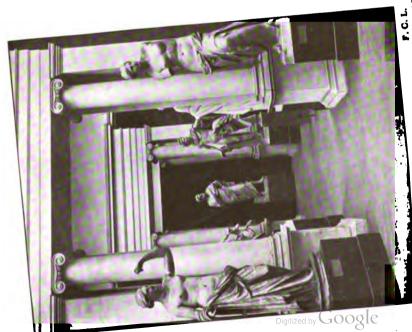
former case we have a well-lighted museum gallery. Double-glass top-lights; exposure, f/16 half a minute. In the second instance a dark tower-like porch to a well-lighted interior. Exposure, f/16 one hour; plate speed, 200 H & D; best summer light. These may be taken as the practical limits of ordinary interiors.

Exposing with Two different Stops.—This is really a very useful procedure in dealing with interiors. The gain is two-fold, viz., in shortening exposure and in giving a pleasingly combined effect of sharpness and softness. The method is as follows:— Suppose that we have determined that our exposure should be equivalent to 15 minutes with f/16, but that for a good sharp all-over negative we ought to use f/32, which would, of course, mean 60 min. exposure. If now we start the exposure with f/32and give 30 min., then cap the lens and change the stop to say f/16 (care being taken not to disturb the camera), and then give a final exposure of 7½ min., we shall have given a combined exposure equal to 15 min. at f/16 or 60 min. at f/32, and at the same time obtained an agreeable combination of detail with softness. Thus, instead of 60 min. our total time would have been 374 min., an appreciable difference.

Factors determining Exposure in architectural interiors:—(1) The time of year. (2) The time of day (sun's altitude). (3) State of weather, clouds, etc. (4) Number, size, position of windows; colour of glass in same, their cleanness, etc. (5) Colour of walls of building, e.g., contrast the extremes of white-washed walls and black oak roof. (6) Speed of plate. (7) Stop. (8) Degree of contrast required.

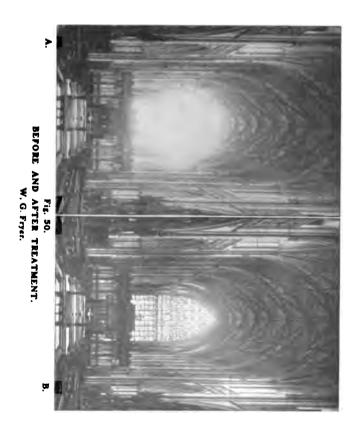
Halation v. Haze.—Experience goes to show that halation-like effect is accentuated in a building in which there is much dust floating in the air; also that different degrees of halation result when equivalent exposures are given to the same objects at different times of day. Thus we get more halation if the sun's light be streaming through a window towards the camera. Moral: Wait until after mid-day before pointing the camera at the east-end window.





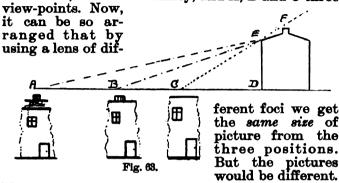
F.C. L.
TYPICAL EXPOSURES
(Vide p. 62.)

Fig. 48.



PRACTICAL POINTS FOR ARCHITECTURAL WORKERS.

The Effect of Focal Length in Architecture may best be shown by means of a diagram. In Fig. 63 we may suppose DEF to be the sectional view of a house side, roof and chimney, and A, B and C three view points. Now



Thus from A we should see chimney, roof and front; from B the chimney would appear to be resting on the front wall; while from C we should see neither roof nor chimney. Now what is here crudely shown with regard to height applies equally to width. Thus in the nave of a church a pillar in two different pictures may appear the same size, but in one case may hide the whole of a window which is seen in the other, and so on.

Focusing in Dark Interiors is facilitated by the use of extra-fine-ground glass, known as "acidetched." The rough side should be rubbed over with a trace of oil or glycerine. Two or three thin microscopic cover-glasses should be cemented to the rough side by means of Canada balsam dissolved in turpentine, chloroform or benzole. One may be in the centre, another near the corner, and a third about midway between the other two. The focussing eyepiece should be very carefully adjusted by focussing upon a fine hair or fly's wing held against the ground side of the screen by means of a piece of clear glass.

Before finally adjusting the focus it is a good plan to keep the head under the focussing cloth and close the eyes for quite half a minute, and then open them *very* slowly. The flame of a lighted

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candle (or match) held by an assistant and moved from point to point in our picture will be found helpful in accurate focussing. Failing this, any dark object (e.g., door-key or small book) may be laid on a white surface (handkerchief, paper, etc.) and used for the same ends. Our chief difficulty, however, is in seeing anything at all when a small stop is being used. To meet this difficulty the accompanying table has been worked out, and will be found to meet the case when we can ascertain the distance of the nearest and farthest parts of the picture:—

Table to assist the adjustment of focus in dark interiors.

(Distances in feet.)

arest ject.	Most distant object.									
S P	10	20	40	60	100	150	200	300		
5	68	8	9	91	91	93	9ន្	95		
10		13	16	17	18	184	19	191		
20			27	30	33	351	361	37		
40				48	57	63	66	70		
60					75	86	92	100		
100						120	133	150		

An example will make its use apparent. Suppose the nearest object in our picture to be a pillar 20 feet away and the most distant a window 100 feet from us. In the left-hand "near" column find 20, and in the horizontal "distant" column find 100. Where these two meet we have 33. Taking our camera into some well-lighted place we measure some object 33 feet from us and focus sharply on that and clamp the focusing screw. measure some object 20 feet away and insert one stop after another until the 20 feet distant object is in sufficiently sharp focus. We now know from our table that objects 100 feet away will be in as sharp focus as those 20 feet from us. We may now return to our original view point and arrange the picture with our largest stop (of course, not disturbing the focus arrangement) and then insert the stop we have just found necessary to give a depth of field ranging from 20 to 100 feet.

Notes and News.

THE following books relating to subjects treated in this number can be furnished postpaid at the prices given:

MIDDLETON, G. A. T. Architectural Photography. 5 x 7 in., pp. 79; fully illustrated. 1898. Cloth boards, 50 cents.

English. Reprinted from "The Amateur Photographer" of 1887-8.

PERKINS, M. A., REV. THOMAS. Handbook to Gothic Architecture. 5 x 7½ in.; pp. 224; fully illustrated. 1897. Cloth, \$1.75.

English. Contains a valuable chapter on photographing English churches, interiors and exteriors.

PHOTO-MINIATURE, THE. No. 55. Architectural Photography. Fully illustrated. 1903. Paper, 25 cents.

A practical handbook dealing with perspective as essential, the selection of the point of view, the location of the horizonline in photographing buildings, apparatus, the use of the swingback composition, lighting, detail work, monuments, structural work, etc.

MARRIAGE, ERNEST. Elementary Telephotography. 5½ x 8½ in.; pp. 118; forty-nine illustrations. 1901. Cloth, \$1.75. English. The best and most generally useful work on this subject. Written for practical workers from experience.

PHOTO-MINIATURE, THE. No. 26. Telephotography. 1901. Paper, 25 cents.

A plainly worded description of the telephotographic lens, its construction and uses in long-distance photography, portraiture, architectural work, etc., with illustrations showing the comparative sizes of images obtained with ordinary and telephoto lenses from the same point of view.

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It is a well-known and acknowledged fact that the American Aristotype Company's exhibit at any convention has been the leading attraction, so far as exhibits of photographs are concerned. In former years it has been the custom of the company to hang an exhibit of photographs in elaborate frames. At no convention have they ever shown their pictures in a style of frame ever exhibited before. This year, however, it was decided that the display of photographs for the New England convention should be the best ever made by the company in point of quantity as well as quality, and that no frames should be used. As a

THE PRACTICAL PHOTOGRAPHER.

consequence, the pictures hung at the Boston convention consisted of Carbon-Platino, Collodio-Carbon, and American Platinum portraits, all in sheet form, hung by the top to rich brown cloth panels. These were twelve in number, each six by eight feet, decorated with festoons of drapery at the top, and with the well-known golden Aristo eagle. The exhibit occupied the reception room of the Mechanics Building, which was well lighted and furnished with easy chairs and sofas. It became the haven of rest of the convention, and the visiting photographers found it an ideal place for rest and study, and declared that the exhibit of photographs was far in advance of anything of the kind ever shown before.

The new electric printing cabinet of the company was shown at the convention. This is a remarkably well-planned arrangement, enabling the photographer to print cheaply, quickly, and uniformly in any weather. The cabinet holds sixty frames which all print at once, and the printer can sit in an easy chair and print all day without moving from his chair. The unanimous opinion of the seven hundred photographers at the convention was that it was a thoroughly simple and practical piece of apparatus. The lamps are furnished for any commercial current, and so are available wherever there is a source of electric supply.

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THE Camera Club of Vienna announces an international exhibition of artistic photography from February 15 to March 15, 1905. The committee, which consists of the officers of the Camera Club, and of Dr. Hugo Henneberg, Heinrich Kuhn, F. Matthies-Masuren, and Dr. F. V. Spitzer, has decided that only the most important achievements in artistic photography shall be exhibited. Only a comparatively small number of works will be shown, and none will be eligible which have previously been on view in Vienna. The jury will consist of Prof. Kolo Moser, the painter Emil Orlik, and Dr. Julius Hofmann of the Vienna Camera Club. Intending foreign exhibitors are requested to make their arrangements with F. Matthies-Masuren, Halle a. S., before the end of December of this year.

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THE following report by a well-known scientist is a good and unprejudiced account of a very valuable plate:

"The Actien-Gesellschaft fuer Anilin-Fabrikation, Berlin, sent their Isolar Dry Plates (patented by O. Magerstedt) to the undersigned for the purpose of exhaustive tests. "The undersigned can, after several tests with these plates, state the following:

"The sensitiveness of the Isolar Dry Plates to light is satisfactory (according to the statement of the works, 24' Warnercke or 15' Scheiner). The undersigned used them several times for producing instantaneous photographs, often under most unsatisfactory conditions.

"The Isolar Plates can be used with very great success for making microscopic photographs of dark-tinted sections. The micrographs obtained were distinguished through by their absolute freedom from halation and their great delicacy of the delineation.

"Isolar Plates can be developed with all good developers. No inclination to fog is observable. The negatives with the finest results were obtained by the use of a slow-working developer; for instance, a specially fine result was obtained by the use of eikonogen-hydrochinon developer. A hydrochinon developer produces a very strong deposit in the high lights. Rodinal also produced good results.

"The proceeding of the development can be very well observed by holding up the plate to the light.

"The use of an acid fixing bath is indispensable with Isolar Plates. The red coloring absolutely vanishes from them after the use of a strongly alkaline developer. It is, however, advisable to wash the negative well in running water before fixing, as otherwise markings almost imperceptible to the eye are liable to occur, which have an unfavorable effect when copying. Any good acid fixing bath can be used. The Isolar Plates fix rather slowly. The red coloring of the plate was not quite removed when using an iron oxalate and an amidol developer during the experiments of the undersigned. The after treatment which the manufacturers recommend in these cases, which is putting the negative, after having washed it for five minutes, in a ten per cent. soda solution and then again in the acid fixing bath, removed the remainder of the red coloring.

"When intensified with bichloride of mercury, and again in a case where the plates had been treated with a process to destroy the fixing salt, a slight coloration of red or orange again appeared, but this also was removed completely in most cases by putting the plates for seven or eight minutes into a ten per cent. soda solution and thoroughly washing afterwards.

"The undersigned has used the Isolar Plates for the purpose of examining them as to their usefulness for all sorts of negatives. They were used with the best results for instantaneous interior

THE PRACTICAL PHOTOGRAPHER.

and portrait negatives; also some excellent negatives of landscapes and mountains (winter landscapes with snow) were produced which were quite free from halation. Scientific sketches, medical and other photographs yielded very good negatives with a very fine effect. The undersigned obtained especially excellent micro-photographs with Isolar Plates. The negatives obtained were absolutely free from halation and very finely detailed.

"In conclusion, the undersigned is very well satisfied with the results of his experiments with the Isolar Plates and can recommend them as a result of his experience with them.

"(Signed) Dr. R. A. REISS.

"Director of the Photo-chemical Laboratory of the University at Lausanne."

30 30 30

THE Third Marseilles Salon will be held by the Photographic Society of Marseilles from the 28th of January to the 12th of February, 1905. This Salon will be international in character, and entries are desired from America. Entries must be made before December 31 to M. Astier, 11 rue de la Grande-Armée, Marseilles, France, and pictures must arrive at the same address before the 12th of January.

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PHOTOGRAPHISCHE BIBLIOTHEK. Gustav Schmidt. Berlin.

- Der Gummidruck. J. Gaedicke. Zweite Auflage. Mark 2,50.
- 11. Das Photographieren mit Films. Dr. E. Holm. Mark 2.50.
- 19. Die Farbenphotographie. Dr. E. Koenig. Mark 2.50.
- 20. Die Herstellung von Diapositive. P. Hanneke. Mark 2.50.
- 21. Anleitung zur Stereoskopie. Dr. W. Scheffer. Mark 2.50.

These latest numbers of this library of photographic text-books are fully equal in quality to those which have preceded them and to which we have referred from time to time. They are all scientifically accurate but still popularly-written treatises, similar in general style to the *Photo Miniature*, and cover the subjects thoroughly and completely.

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LEITFADEN DER LANDSCHAFTS-PHOTOGRAPHIE. Von Fritz Loescher. Zweite neubearbeitete Auflage. Mit 24 Tafeln. Gustav Schmidt, Berlin. Price in paper, Mark 3.60; in cloth, Mark 4.50.

This new edition of a book which we have previously reviewed

and recommended is thoroughly revised and is now a most comprehensive work on the whole subject of landscape photography. It is thoroughly practical and written by a man with no fads on the subject. The illustrations are illuminating, and the book is well printed.

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FOTOGRAFIE ALS KUNST. EENE VERSAMELING KUNSTFOTO-GRAFIEN MET BEGLEIDENDEN TEKST IN HET HOLLANDSCH EN DUITSCH DOOR W. H. IDZERDA TE'S GRAVENHAGE EN F. MATTHEIS-MASUREN TE HALLE A. S. Wilhelm Knapp, Halle a. S., J. R. A. Schouten, Amsterdam. Price yearly, 12 gulden; single copies, 3.60 gulden.

This beautiful quarterly is the Dutch edition of a magazine which is to appear also in German and probably in French and English. Each number is to contain pictures of one class only. The present number is devoted to landscape, and the next will contain portrait work. The size of the pages is very large, and the presswork and typography are faultless. The pictures are partly illustrations on text pages and partly full page, and comprise some of the best landscape work produced in the world in the last ten years.

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WE are in receipt of a copy of the Association Review, the programme of the Twenty-fourth Convention of the Photographers' Association of America. The book is edited by C. W. Hearn, of Boston, and reflects great credit on the ability of this gentleman and those who assisted him. The typography is excellent, and the illustrations, which are numerous and well chosen, are nicely reproduced. On the whole, the Association is to be heartily congratulated on its souvenir book.

4 4 4

THE Second Annual Convention of the Photographers' Association of California was held this year at San Francisco on October 26, 27, and 28. The Association has a large and growing membership, and its meetings are always marked by the display of much enthusiasm. An interesting and well-illustrated souvenir programme forms a pleasing memorial of the event.

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THE department of photography at the Bristol County Fair was this year as successful as ever under the direction of Mrs. W. A. Chaplain, whose enthusiasm and ability are in large

THE PRACTICAL PHOTOGRAPHER.

measure responsible for the inception and continuance of this exhibit. The collection shown this year was large and interesting, and included an exhibit, loaned by the *Photo Era*, of pictures by J. R. Peterson, C. F. Clarke, and F. R. Fraprie. This collection was not entered for competition. The awards in the competitive section were as follows: For collections: 1. C. M. Lee, Providence; 2. A. L. Barrows, Whitman; 3. A. G. Smith, Brockton; 4. William Whitehead, Taunton; 5. Eben T. Wood, Middleboro. Portraits: 1. Miss E. L. Williams, South Manchester, Conn.; 2. A. L. Barrows; 3. A. G. Smith; 4. M. B. Schwab, Philadelphia. General class: 1. A. L. Barrows; 2. Miss S. A. Gifford, Boston; 3. W. B. Livermore, Reading; 4. J. Harry Thomas, Boston.

JE 36 36

THE following unique invitation was recently sent to members of the Canton, Mass., Camera Club. Reports are that those who accepted did not regret it.

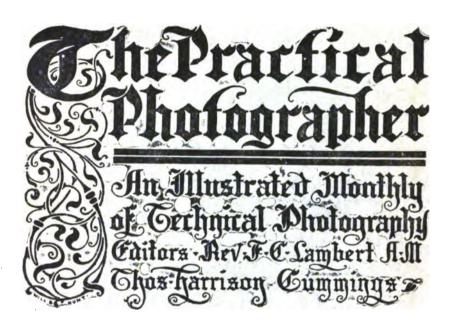
"CAMP MEETING.

"The Kamera Klub has but one holy man, a hermit dwelling in the pastures of Robert the Welshman, on the shores of the Reservoir of Peace, which is in Canton, strange to relate.

"Moreover, this holy man has about decided to quit his job. Too much peace is making him round-shouldered. The Kamera Klub is therefore invited to come over and whoop him up a little bit and get him acquainted with the ways of the wicked, on Sunday, October ninth.

"Amid the whoops each man is expected to pass the photographic plate and collect a picture on it. There will be a feast of reason and a flow of bowl, and a representation of hell fire during the evening. Services open at 11 A.M., and if you have not found peace by 7 P.M. you will be put in the reservoir.

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Dictorial Work of Arthur Burchett

Architectural Work

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Contents of Our Next Number.

The next number of the PRACTICAL PHOTOGRAPHER will deal with Retouching, a subject of very practical nature and one especially timely at this period of the year, when indoor work is so universal.

The number on Lantern Side Work, provisionally announced, has been indefinitely postponed.

Other Numbers to follow and already in active preparation will deal with Winter Work, Gum-bichromate Printing, Portraiture, Flowers, Animals, Marine and Seascape, Clouds, Genre, Lenses, Night Photography, Chemistry, Orthochromatic Photography, Telephotography, Ozotype, Iron Printing Processes, Optical Lantern, Stereoscopy, Flash-light Work, Finishing the Print, Combination Printing, Pictorial Composition, Photo-micrography, Figure Studies, Copying, etc.

Hints for Intending Contributors.

The Editor will be pleased to carefully consider manuscript bearing on any of the subjects announced. Preference will be given manuscripts characterized by the following features:—

- 1. New or little-known methods; formulæ personally tested.
- 2. Short sentences and simple language, with diagrams when needed.
- 3. Brevity, so far as is consistent with clearness. The first and last pages of the manuscript should bear the sender's name and address. The approximate number of words should be stated. Contributors may, if they please, send a brief outline or synopsis of their proposed contribution.

The Editor cannot undertake any responsibility whatever in connection with manuscript, but if stamps are sent for return postage, he will endeavor to return as quickly as possible any manuscript not accepted for publication. Manuscript should reach the Editor not later than two months before date of publication.

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The Practical Photographer

No. 8.

Architectural Work.

November, 1904.

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Special Subscription Offer



REPROCESSION Dringing THE PRACTICAL PHOTOGRAPHER to the attention of the American public, the publishers of the PHOTO ERA have had a definite aim in view. We have long realized that it was impossible for the PHOTO ERA to fill all the needs of the amateur. It has been

necessary to make a choice as to what particular need it should specially subserve, and we have chosen for it the path of pictorial and artistic excellence. In so doing, we have necessarily been unable to meet the wants of a considerable portion of the reading public, which prefers rather practical directions for overcoming its difficulties, and instruction on technical points. This want is admirably filled by THE PRACTICAL PHOTOGRAPHER, which is devoted mainly to technical, as the PHOTO ERA is to artistic, photography. Thus one of these magazines supplements the other, and both are a necessity to all up-to-date photographers.

In order to introduce the PHOTO ERA to the numerous readers of THE PRACTICAL PHOTOGRAPHER, we will for a limited time enter subscriptions to both periodicals for a year at the reduced price of .

This applies to either new or old subscribers. If you are already a subscriber to the PHOTO ERA, we will extend your present subscription for a year.

With every subscription to the PHOTO ERA or THE PRACTICAL PHOTOGRAPHER enclosing \$2.50, whether new or a renewal, we will give the choice of the following offers:—

(1) A PHOTO ERA enlargement from your negative, any size up to 11 x 14; or

(2) A portfolio containing twenty-four PHOTO ERA Artist Mounts, about y x 12 in size, containing a selection of papers of various shades and textures, suitable for every variety of photographic print, or the choice of our mount portfolios A, B, C, D, F, or H, described in current issue of THE PRACTICAL PHOTOGRAPHER.

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" 2. May, " Printing on Bromide and Gaslight Papers

" 3. June, " Developing and Developers
" 4. July, " After-Treatment of the Ne

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The mounts are in quarter sheets, averaging about 9 x 13. Each is sold at fifty cents, except G, which costs seventy-five cents, and I, which costs two dollars. Ten cents must be added for postage on A, F, G, and H, twenty cents for B, C, D, and E, and fifty cents for I.

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- HI Silk tissues for protecting prints. Sixty sheets.
- I Sample sets of our entire assortment of mounts. Seventy-five sheets, price two dollars.

The Edition de Luxe

of the PHOTO ERA has proved a marked success, and has awakened among our readers a lively interest in the progress of artistic photography. The mounting of the pictures has proved to be extremely valuable and inspiring. We find, however, that the *Edition de Luxe* does not fully cover the field that was planned for it as an authoritative leader in pictorial photography. We have decided to replace it, therefore, with a new and entirely independent publication which will be entitled

Art in Photography

THIS new periodical will be entirely pictorial, text matter being introduced only at intervals. It will be in the shape of a portfolio of pictures, size 11 x 14 inches, appearing every other month. Each portfolio will contain four or more photogravures printed on the finest plate or Japan paper, the subject of each being a photograph by one of the world's greatest pictorial photographers. We have secured the coöperation of leaders in every country of Europe, and the selection of pictures for the photogravures will be international in its scope, and include only masterpieces of the various schools represented.

In addition, each number will contain eight or more mounted reproductions in the style which has characterized the *Edition de Luxe*, except that the larger size will allow larger pictures to be used, and the final effect will be even more imposing.

ORIGINAL PRINTS

made by photographic methods will be included from time to time, when it appears advisable to reproduce in this fashion rather than by photogravures. Each number will be contained in a suitable portfolio which will ensure safe keeping of the pictures if they are to be kept together, or allow easy removal for framing if that is desired.

THE TERMS OF SUBSCRIPTION

are as follows: Single copies ordered before publication will cost \$2.00 each; the price will be advanced after publication, as a limited edition will be printed. Yearly subscription, including six copies, \$10.00. A special rate of \$9.00 will be given to all who are on the subscription list of the PHOTO ERA or the Practical Photographer, or who include a subscription to either of these publications with their orders. The unexpired subscriptions to the Edition de Luxe will be filled with copies of Art in Photography. Present or past subscribers to the Edition de Luxe may subscribe to Art in Photography at the reduced rate of \$9.00.

The first number will bear the dute of February, 1905, and will appear in January.

The first number will bear the dite of February, 1996, and will appear in January. Subscriptions are solicited at once, as the list for the first number must be closed some time before publication, owing to the amount of hand work involved in mounting, and because we do not contemplate printing any large surplus over orders received.

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THE VELOX DEVELOP-ING MACHINE

One good thing leads to another.

A natural result of the success of the Kodak Developing Machine is the Velox Developing Machine. This new machine is exceedingly simple in operation, saves the necessity of putting the fingers in the developer, and avoids bubbles and streaks.

It marks another step towards cleanliness and convenience in photographic work.

TO OPERATE.

Print in the usual manner, then proceed to develop as follows:

I. Pour into the machine three ounces of Velox Liquid Developer, diluted according to the kind of Velox used. Provide a tray of sufficient size, 5×7 for 4×5 and smaller prints, $6 \frac{1}{2} \times 8 \frac{1}{2}$ for 5×7 prints. Nearly fill this tray with clear water and place it in front (the front is the end on which the word KODAK appears) of the machine. Pour a sufficient quantity of acid fixing solution into a second tray.

You are now ready to develop the prints. Stand at front of machine; insert the end of print, surface up, in the slot of the drum, then turn the crank slowly to the right, and the print will be drawn through the developer. Continue to turn the crank, watching the appearance of the print as it comes into view. After development is complete continue to turn the crank until the free end of the print is about an inch past the pointed end of the hinged flap. Now quickly reverse the motion and turn the crank to the left, when the flap will automatically pick the print from the drum and throw it into the tray of water. Allow the print to stay in the water a second or two, then

place it in the fixing solution face up. Now proceed with next print in similar manner. Care should be taken that the prints are wholly immersed in the fixing solution, which may be accomplished by the aid of a small wooden stick. Fixing and washing are completed in the ordinary manner.

If a large number of prints are developed in succession it will be necessary to occasionally add an ounce or two of developer, as a slight amount is absorbed by each print. The machine, however, will be found very economical in operation, as it is possible to develop a 5 x 7 print in two ounces of developer.

When through using the machine it should be thoroughly rinsed and wiped well, and set away to dry.

THE PRICE.

Velox Developing Machine, for prints of any size up to and including 5 x 7 . . . \$5.00

"AMATEUR POR-TRAITURE BY FLASH-LIGHT"

Attracted by the delightful portraits made with Kodak and Flash-light by Mr. Wm. S. Ritch, we arranged with him to write and illustrate for us a booklet entitled "Amateur Portraiture by Flash-light."

Mr. Ritch has some very original ideas on the subject of flash-light portraiture, and his method, we feel sure, will be of great help to the amateur in following up this delightful and interesting phase of photographic work.

The little book contains, in addition to the cleverly and clearly

written text, twelve half-tone reproductions from Mr. Ritch's charming photographs, and two diagrams that will be of wonderful assistance to the amateur.

Price, ten cents — at any Kodak dealers or by mail, post-paid.

ALL FASTMAN.

AN ENTHUSIASTIC AMATEUR WHO USES KODAK PROD-EXCLUSIVELY-UCTS WHICH FACT PROBABLY ACCOUNTS FOR HIS EN-THUSIASM.

> Rangeley Lake House, Rangeley, Me., July 31, 1904.

NEPERA DIVISION. EASTMAN KODAK COMPANY. ROCHESTER, N. Y.

Gentlemen:

I have tried this new developer (N. A.) with your Carbon, Special Carbon, Velvet Velox, Glossy and Special Glossy Papers, in fact with all your different makes of Velox Papers, and with them all I had perfect success, no stains of any kind; in fact, the pictures were the best I have ever made, and I like it much better than the old developer.

Since I have been up here my family and I have taken over one thousand pictures. Every one of them I have

Mezzo-Tone is Simplest.

developed myself, and done all the printing. We have nine of your cam-

eras and use nothing but your goods.

I do not know what I would have done without your Kodak Developing Machines; they are better than you claim them to be, and I am happy to say that I have one of each size you make. They all give more than satisfaction and are all in constant use; in

fact, I may say daily use.

My little son of seven years has one of your new No. 2 Folding Brownies, and has made many very fine pictures; in fact, all he has taken have proved to be good, and I am proud to say have been the means of a great many Brownies being sold. He also can develop and print, which proves how simple you have made the work, and he is devoted to his Brownie.

Very truly yours,

ALBERT B. HILTON.

OTHER KODAKS AT THE FRONT

Mr. Percy Phillips, a war correspondent sent out by the Daily Express, who has recently returned from the seat of war, has brought back about goo films taken with the No. 3A Folding Pocket Kodak. All of these were developed in the Kodak daylight developing machine, and some sixty-five reproductions from these negatives have already appeared in the Illustrated London News. Prints are now being made from the rest of the negatives by KODAK, Limited, and a fine collection of reproductions of the stirring scenes of the last few 12000 Jud bari

months will result from them.— British Journal of Photography.

EASTMAN KODAK COMPANY, ROCHESTER, N. Y.

Dear Sirs:

I have recently returned from Manchuria, where I have been serving as war correspondent for the London Daily Chronicle. While there I used your Pocket Folding Kodak, and wish to testify to the general success which attended my efforts with it. In my story of Manchurian Adventures, which appeared in the July Sunset Magazine, illustrated by photos taken by myself, I wish to state that all of the aforesaid pictures were taken by the use of the Eastman, including the photo of myself, which James F. J. Archibald took for me. * * * *

Very truly yours,

GEORGE F. BRONSON-HOWARD.

The truth from the seat of war is that the Kodak and the Kodak Developing Machine are carrying everything before them. Colonel Archibald, to whom Mr. Bronson-Howard refers above, is a most enthusiastic devotee of the Kodak, and, so far as we know, was the first of the war correspondents to make use of the Developing Machine, he having used it with marked success in the late difficulty between Venezuela and Germany.

Wm. Dinwiddie, who is still at the front, carried a Kodak through the Spanish war, using it daily under the most trying circumstances in the Cuban and Porto Rican campaigns, und expressing himself enthusiastically over the results after his return. George Kennan, the famous writer on Russian topics, is also at the front, and from him we have already published an endorsement of the Kodak and Machine.

Perhaps the photographic situation in the Far East is best summed up by the statement of Collier's Weekly that ninety per cent. of the pictures of important events at the seat of war received by them are on films.

In war, as in peace, the Kodak is at the front.

THE DANGER SIGNAL

When the photographer fixes a negative, he can tell from its appearance whether or not it is fixed. With prints he has never had any such guide, and many faded ones have been the result.

But the new N. A. Velox Liquid Developer puts out a danger signal. It turns the print a canary yellow, and the color does not disappear until fixing is complete.

Fifteen minutes in the Acid Fixing bath will remove this color every time, unless the bath has been weakened by overworking, or has been too much diluted. If the color remains, the print

is n't fixed — if it disappears, it is fixed; and, moreover, it will be permanent.

The yellow color on the prints has led some people to believe that there is cyanide in the N. A. Developer. This is positively not the case. It contains no cyanide or other dangerous poison.

Velox, Velox Liquid Developer, Velox Hardener — they work best together.

NEPERA DIVISION,

Eastman Kodak Co.

STILL THEY COME

Another Well-known Worker Surrenders to the Kodak Developing Machine.

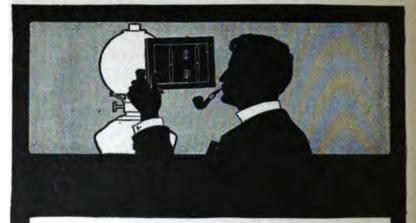
The time method of development has won. The Kodak Developing Machine has led the forces in favor of it, and the skeptics are routed. It is not only films now, but plates too. The authorities are beginning to agree, and the photographic magazines are full of articles advocating the "time" system. In the October Camera, Felix Raymer touches the subject of development in his article on "Flash-light Photography."

"There has been much said about the developing of a plate, but in my opinion there has been a greater buggaboo made over it than the importance of the case warrants. If the exposure has been anywhere near right, even a child can develop the negative. In fact, all that is necessary will be for some one to place the plate in the developer and time it, and when the proper time has been passed, take the plate out. There is no necessity for examining it while developing, and in fact it has been my experience the more you examine the plate during the progress of development the less of a rich quality is there secured."

One of the best known and most progressive of the many earnest workers in the New York Camera Club is Mr. Harry Coutant. Mr. Coutant is intensely practical. A theory does not satisfy him, and so he has been making some careful tests of the working of the Kodak Developing Machine. In a recent letter to the Nepera Division, in which he spoke most enthusiastically of the new N. A. Velox Liquid Developer, he also had this to say of the Kodak Developing Machine:

I have lately also been trying your Kodak Developing Machine, and am glad to say that the results obtained were most surprising. Although I knew the theory was correct, still I have been somewhat skeptical, but after my experience with it am convinced that its use is the only rational way to develop a film.

HARRY COUTANT.
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No Abrasion

Abrasion marks have heretofore been the one defect that manufacturers of glossy development papers have striven in vain to overcome. They are now a thing of the past—at least so far as Velox is concerned.

VELOX PRINTS DEVELOPED WITH THE NEW N. A.

VELOX

Liquid Developer

ARE ABSOLUTELY FREE FROM ABRASION.

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An "all-round plate" of superior chemical quality.

Valuable both in studio and view work on account of wide latitude, the exceptional brilliancy of the negatives, and their delicacy of gradation in the half-tones.

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